# PRELIMINARY PLANT ASSOCIATIONS OF THE KLAMATH PROVINCE SIX RIVERS AND KLAMATH NATIONAL FORESTS

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**ABSTRACT**

This study conducted in northwest California in the Klamath vegetation province of the Six Rivers and Klamath National Forests, describes 157 plant associations and 51 sub-series, within 13 vegetation series. Vegetation series, sub-series, and plant associations changed in response to the three primary environment gradients; elevation, moisture, and parent material. The Douglas-fir series had the highest number of sub-series, 11, while the white fir series had the highest number of plant associations 41. The series with the greatest extent in the study area, tanoak, contained 7 sub-series and 38 plant associations.

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| Douglas-fir | U & V |
| Knobcone Pine | W & X |
| Western White Pine | Y & Z |
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## INTRODUCTION

### Document Structure:

This document is organized into sections. The introduction section includes;

1. definition of terms,
2. the nomenclature used,
3. the purpose of the study,
4. a literature review,
5. a description of the study area with,
    a. location,
    b. environment,
    c. vegetation,
    d. soils,
    e. and, timber,
6. the sampling strategy,
7. the sampling methods,
8. a description of the use of plant association keys,

This section is followed by;

9. a section describing each vegetation series, including;
    a. a general description of the series,
    b. a dendrogram of the series with sub-series, and plant associations,
    c. comparison tables of location by ranger district, environment and soils, stand structure, and vegetation,
    d. a sub-series and plant association key,
    e. and, descriptions of each plant association.

### Definitions:

**SERIES:**
A vegetation series is an aggregation of taxonomically related plant associations which take the name of the (climatic) climax species that dominate (or have the potential to dominate) the principal vegetation layer in a time frame appropriate to the vegetation or taxonomic group under consideration.

**SUB-SERIES:**
A vegetation sub-series is an aggregation of taxonomically related plant associations within a series that takes the name of that series followed by related species that are dominant, or have indicator value across multiple plant associations.

**REPRODUCING SUCCESSFULLY:** The species is present throughout the structural layers which are represented in the late seral stand.

**PRIMARY REGENERATING SPECIES:** The species which is higher in cover, or in number of individual stems, than any other species of

the principle vegetative layer.

**SERAL, LATE SERAL:** These terms refer to the successional status of the stand and not to stand age.

**OLD GROWTH and MATURE:** These terms refer to stand age and not to the successional status.

**PLANT ASSOCIATION:**
A potential natural plant community of definite floristic composition and uniform appearance that takes the name of the projected climax type.

**INDICATOR SPECIES:**
A species which is sensitive to important environment features of a site such that it's constancy or abundance reflect significant changes in environment.

**ECOLOGICAL TYPE:**
A category of land having a unique combination of potential natural community, soil, landscape features, climate, and differing from other ecological types in its ability to produce vegetation and respond to management.

**ECOLOGICAL CLASSIFICATION:**
The process of classifying ecological types.

**CHARACTERISTIC COVER:**
The percent cover one could expect to find in a plant association if a species were present. It is calculated by summing percent cover and dividing by the number of plots containing the species.

**CONSTANCY:**
The percent of times a species was found to occur in a plant association.

## Nomenclature:

Species nomenclature follows Munz (1973) and common names used follow Abrams (1968), Munz (1973), and Atzet and Wheeler (1984). A complete list of species encountered during this study are included at the end of each series section.

Species were assigned to structural categories, such as tree, shrub, herb, or grass, and given an abreviated code according to the "Electronic Data Processing Codes For California Wildland Plants" (Reed and others 1987). These EDP codes are used throughout the ecological classification program in California to standardize the identification of plant species and the naming of plant associations. The codes use the first two letters of the genus and first two letters of the specific epithet (species) and

a numeric code if necessary to distinguish species. Using Jeffrey pine as an example, Pinus jeffreyi, would be represented as PIJE. More examples of EDP codes and a complete species list are found at the end of each section.

The plant association name is broken down into two parts, first the biotic and second the abiotic. The biotic segment is subdivided by strata. A / is used to represent a stratum change, while a - represents species in the same stratum. Examples of different plant association names include; PIJE/QUSA/XETE, PIJE-ABCO/IRI and PSME-QUCH2/ROCKPILE. In the first case, PIJE/QUSA/XETE, the strata are all different (tree/shrub/herb). In the second case PIJE-ABCO/IRI, includes only two strata (tree-tree/herb). The third case, PSME-QUCH2/ROCKPILE, involves one stratum and the abiotic portion of the name (tree-tree/abiotic). The abiotic portion of the name will be added to describe some special feature of the plant association. In the example above, rockpile is added to describe the rocky surface indicative of this plant association.

The order of species in the plant association name identifies the vegetation series, sub-series and plant association. The first name listed identifies the series, which is the naturally reproducing species that will dominate a site as the end product of succession. The second name listed is the sub-series, which is the indicator of the position of this plant association along an environment gradient within the series. The third part of the name identifies the plant association. Using the LIDE2-CHLA/ACCI plant association for example, it is included within the Tanoak series. Within this plant association tanoak is the naturally reproducing species that dominates late seral stands. The sub-series modifier, Port-Orford cedar, indicates the wet end of the tanoak series moisture gradient. The third part of the name vine maple, indicates the wettest portion of this sub-series, located near streams. Acceptions to this format occur when there are only two parts to the name, such as CHLA/GASH or when more than three names are used as in the ABCO-PSME/ROGY/LIBOL plant associations. In the two part name example the series is Port-Orford cedar, the sub-series is also Port-Orford cedar, while the plant association is described by salal. All parts of the name are necessary to describe a plant association, while the sub-series requires both the series and sub-series to be complete.

**Purpose:**

The Forest Service in the Pacific Southwest Region has begun a long term project to develop an ecological classification system for the 20 million acres it manages in California. This classification follows those developed by federal agencies throughout the United States. The largest and most important of these classification efforts is being conducted by the U.S. Forest Service (Franklin 1980). The California portion of this

classification effort will identify and describe vegetation/soil/physiographic/management units called ecological types. These units are distingushed from each other by differences in species composition, soils, productivity, physiography, and expected response to management (Allen, 1986). In the early phases of this project the management implications are not always known and therefore the classified units are referred to as plant associations. This document includes examples of both ecological types and plant associations and has as an objective the classification of all units into ecological types. This will probably require several years of field testing to achieve.

Hall (1983) states the purpose of ecological classification is to develop a storage and retrieval system for ecological information that can be used to:

1. characterize plant communities,

2. refine prediction of how a stand will react to treatment, and

3. to aid in development of prescriptions to attain management goals.

Vegetation classification provides a common language for better communications between specialists, an ecological data base to help understand plant-environment interactions, and a tool for land and resource management (Wenger, 1984). Pfister (1976) suggests that habitat types (ecological types) be used as the basic land capability assessment tool since they are not limited to the prediction of a single resource. In areas where ecological types are described and include silvicultural and mensurational information the reliability of management prescriptions should increase (Layser 1974).

The objectives of ecological classification are to provide a unifying framework for coordinated resource inventories, and provide ecological data to improve the understanding of land and resource production capabilities in the National Forest System (Allen 1985).

**Literature Review:**

Early attempts at vegetation classification in this country were broad based. They included identification of forest cover types (Society of American Foresters 1964), major phytogeographic units (Franklin and Dyrness 1973), soil-vegetation mapping units (USDA 1961), CALVEG series (USDA 1981), and major vegetative formations (Kuchler 1977). Most of the early broad based work lacked applicability to site specific management situations becuase they were single factor methods (i.e. soils, vegetation, or landform). Burton and others (1982) suggest the best way to classify and map ecosystems is to use as many of the significant

factors and interrelationships as possible. Since forest management often leads to drastic changes in vegetation it is important that something other than vegetation be used to classify forested sites.

Daubenmire (1952) was one of the early pioneers of vegetation classification with his designation of "habitat types". Daubenmire's work was followed by Youngberg and Dyrness (1959) who incorporated soils and topography into their description of the Lodgepole Pine forest cover type. R. Daubenmire and J. Daubenmire (1968) refined their original system and it has served as a model for the classification of other areas. These efforts were followed by attempts to include silvicultural implications for each forest cover type (USDA Forest Service 1973). Ecological classification based on vegetation has been used as a land management tool by foresters in the northern Rocky Mountains and elsewhere (Layser 1974).

The Pacific Northwest is one of the principal forest growing areas in the world, yet soil as a factor in the production of forest resources has only been studied for a short time (Gessel 1981). Dyrness and Youngberg (1966) included soil-vegetaion relationships in their description of plant communities within the ponderosa pine type in the central Oregon pumice region. Volland (1976) included vegetation, soils, topography, and management implications in his classification of "plant communitites of the central Oregon pumice zone". Hall (1970) suggests that soils tend to occur in continuum gradients and that abrupt changes in environment are reflected in abrupt changes in plant communitites. In a study relating soil and site factors to site index, Hatton (1983) found that site index was predictable using soil depth, A horizon color value, coarse fragment content, sand content, and A horizon thickness. Milton and Purdy (1983) in a study in the Great Basin related differences in vegetation composition and cover to soil depth, texture, and amounts of clay. Viereck and others (1983) in their classification of forested stands in Alaska used soil factors to define types. Whittaker (1960) in his classic study of the Siskiyou Mountains concluded that parent material was the primary factor responsisble for the current vegetation patterns. Sawyer and Thornburgh (1974) in a study in the central Klamath Mountains found a significant difference in forest patterns on granitic parent material when compared to adjacent stands on metasedimentary and ultrabasic dominated parent materials. Gauch and Stone (1979) in a forest study in New York related their main vegetation gradient to elevation, soil nutrients, pH, and texture. Hall (1973) described the plant communitites of the Blue Mountains in eastern Oregon and southeastern Washington based on similarities in soils, topography, climate and vegetation. Waddell (1982) used vegetation, soil and physiography to classify forest types in the Yolla Bolly Mountains of Northern California. Francis (1986) classified a watershed in New Mexico into ecological Phyto-edaphic communitites based on a combination of land form, vegetation, and

soils. Atzet and Wheeler (1984) developed a classification for the Siskiyou Mountains in southwest Oregon, based on similar vegetation composition and expected management response.

## STUDY AREA

### Location:

The study area is located in the Klamath Province of northwestern California (fig. 1). It is bounded on the north by the Oregon border, on the south by the Mendocino County line, on the east by the Klamath River, and Shasta-Trinity National Forest, and on the west by the Forest boundary.

### Environment:

Within the study area, the dominant topographic features include the Coast Ranges and Klamath Mountains. Elevation ranges from 100-8000 ft. (30-2450 m). Slopes are generally steep, ranging from 0 to 95 percent. The major geologic bedrock of the study area range from Mesozoic ultrabasic intrusive, Jurassic-Triassic metavolcanic, pre-Cretaceous metasedimentary, upper Jurassic marine sedimentary formations to Mesozoic granitics.

### Climate:

The climate of the study area is characterized by warm, dry summers and cool, wet winters (Shumway 1981). These conditions are moderated by coastal fog and its cooling influence in the coastal portions of the study area. Mean annual air temperature is approximately 45 F (7 C) (Parsons and Knox 1984). Summer temperatures seldom exceed 90 F (32 C) except in the inland portions of the study area , while winter temperatures are cool ranging from 10 F to 25 F (12 C to 4 C). Mean annual precipitation ranges from 50 to 120 in./yr (125-305 mm) (Albert 1979).

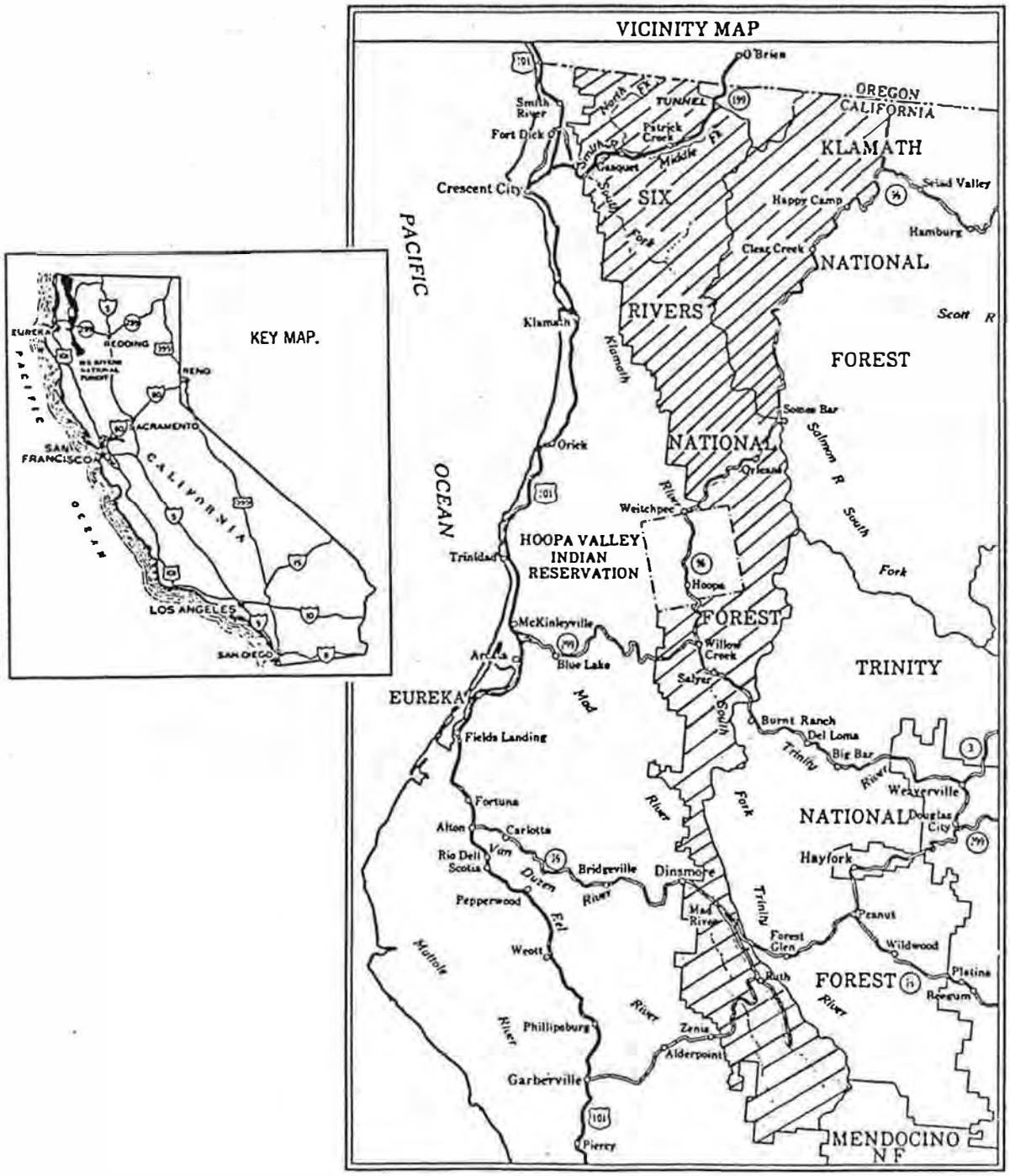


Figure 1. Six Rivers and Klamath National Forests with study area cross-hatched.

**Vegetation:**

Distribution of conifer series within the study area is largely determined by elevation, available moisture, and parent material: (1) the Port-Orford-cedar (Chamaecyparis lawsoniana [A.Murr.] Parl.) series is of limited extent (Table 1), it is located along the stream bottoms, in boggy areas, and in the lower one-third slope positions where moisture is high, it is often found in small pockets intermixed with other conifer series along a wide elevation gradient;
(2) the Tanoak (Lithocarpus densiflora [H. & A.] Rehd.) series is the most widespread series in the study area (Table 1), it begins at the bottom of the slopes and continues upslope to approximately 3000 ft. (900 m) elevation;
(3) the Douglas-fir (Pseudotsuga menziesii [Mirb.] Franco.) series replaces the tanoak series on drier upland sites, usually above 3000 ft. (900 m) elevation, it extends into midslope and upper slope positions to approximately 4500 ft. (1350 m) elevation;
(4) the White fir (Abies concolor [Gord. & Glendl.] Lindl.) series replaces the Douglas-fir series above 4000 ft. (1200 m) elevation and is second in acres covered to tanoak; and (5) the Red fir (Abies magnifica A.Murr.var. shastensis Lemmon) series replaces the white fir series at the top of the highest mountains. Small pockets of redwood (Sequoia sempervirens Endl) are found on the west side of the Six Rivers National Forest on the Gasquet Ranger District, while jeffrey pine (Pinus jeffreyi Grev.& Balf.), lodgepole pine (Pinus contorta Dougl.), and knobcone pine (Pinus attenuata Lemmon) are found throughout the study area on soils derived from serpentine parent material. The drier portions of the study area (Happy Camp, south end of the Lower Trinity, and Mad River Ranger Districts) contain areas dominated by white oak (Quercus garryana Dougl.), black oak (Quercus kelloggii Newb), and grasslands (Table 1).

Table 1. Approximate acreage for each vegetation series in the study area.

| Vegetation Series | Approximate acres | Pct |
|---|---|---|
| Tanoak | 650,000 | 43 |
| Douglas-Fir | 200,000 | 13 |
| White fir | 390,000 | 26 |
| Serpentines[a] | 130,000 | 9 |
| Red fir | 50,000 | 3 |
| Port-Orford cedar | 10,000 | 1 |
| Jeffrey Pine | 15,000 | 1 |
| Oak Woodlands | 35,000 | 2 |
| Grasslands | 15,000 | 1 |
| Chaparal | 4,000 | <1 |
| Redwood | 1,000 | <1 |
| Total | 1,500,000 | 100 |

a/ Includes knobcone pine, lodgepole pine, and western white pine.

**Soils:**

Soils are by definition the unconsolidated mineral material on the surface of the earth that serves as a natural medium for land plants (Soil Science Society of America, 1973). Soils provide anchorage for plants and the raw material (water, nutrients, and oxygen) necessary for plant growth (Armson, 1977). How well soils can provide these raw materials is dependent on their characteristics, such as depth, texture, % coarse fragments, available water holding capacity, % organic matter, temperature regime, moisture regime, pH, and parent rock.

The soils within the study area are relatively young and contained mainly within the Inceptisol, Alfisol, and Entisol orders (SMSS 1985). The soils are primarily deep, moderately deep and occasionally shallow, with loamy skeletal and fine loamy textures, and included within the mesic and frigid soil temperature regimes and xeric and udic soil moisture regimes. Soils are derived from igneous intrusive (granite, mafic, ultramafic), metamorphic (phyllite, slate, schist, serpentine, greenstone), and sedimentary (sandstone) parent materials.

The vegetation series are described by comparison tables comparing parent material, soil depth, AWC, and A horizon thickness, coarse fragments, color, and pH by plant association. Mean soil depth will change for deep soils after the intensive phase because the maximum depth examined during the reconnaissance phase was 40 inches. Tables are presented at the beginning of the series. They contain the number of occurences of soil families or series by plant association. This is followed by tables which present the general descriptions of the prominent soil types, soil characteristics and management interpretations for each soil type, the number of occurences of parent material by plant association and the soil characteristics and management interpretations by parent lithology.

Definitions of soil terms are listed below to aid the reader in understanding the document.

The depth phase modifiers used with the soil names are defined as:

| | |
|---|---|
| shallow (or lithic) | = < 20 inches |
| mod deep | = 20-40 inches |
| deep | = > 40 inches |

The soil texture abbreviations are standard textural designations, and are defined as:

l = loam
cl = clay loam
sicl = silty clay loam
sl = sandy loam
scl = sandy clay loam

Coarse fragment modifiers are:

| | |
|---|---|
| g = gravelly | (15-35%) |
| k = cobbly | (15-35%) |
| st = stony | (15-35%) |
| b = bouldery | (15-35%) |
| v = very | (35-60%) |
| x = extremely | (> 60%) |

The ratings contained in the soil tables were derived using the interpretation procedures described in Soils of the Six Rivers National Forest, Order III SRI (Parsons and Knox 1980). A brief explanation of the ratings follows:

REGENERATION POTENTIAL: The regeneration potential is a rating of the potential for survival of bare root seedlings in clearcut areas the first season following planting. In most cases, moisture available to the seedlings is the most critical factor. This is related to available water holding capacity (determined by the texture, depth, and coarse fragment content of the soil), aspect and amount and type of competition. Temperature, as affected by aspect and elevation is also an important factor, as is fertility, which relates in part to the material from which the soil has developed (parent material).

COMPACTION HAZARD: The compaction hazard rating expresses the susceptibility of the soil to reduced productivity due to compaction during logging operations. Soil density is increased after compaction, and can result in increased resistance to root penetration, decreased availability of oxygen to plant roots, reduced permeability and infiltration rates, and increased runoff.

The compaction hazard rating is based on the texture, organic matter content, and coarse fragment content of the top 10 inches of the soil. Low clay soils and soils high in organic matter can undergo a greater increase in soil density before adversely affecting productivity than can soils high in clay or low in organic matter.

FOREST SURVEY SITE CLASS: The Forest Survey Site Class (FSSC) and Dunning site classes are expressions of the productivity

of the soil for commercial timber. The FSSC index reflects the growth rate as Mean Annual Increment at Culmination, in cubic feet/acre/year. The relative categories are shown in the following table:

| FSSC | MAI at Culmination (cu.ft./ac/yr) | Dunning Site Class |
|---|---|---|
| 1 | 225+ | |
| 2 | 165-224 | 1A |
| 3 | 120-164 | 1 |
| 4 | 85-119 | 2 |
| 5 | 50-84 | 3,4 |
| 6 | 20-49 | 5 |
| 7 | <20 | |

AVAILABLE WATER HOLDING CAPACITY: The available water holding capacity (AWC) is the capacity of the soil to hold water in a form available to plants. AWC is expressed in inches of water. The amount of water a soil can hold depends primarily upon its texture and depth. Gravel, cobbles, and stones reduce the AWC of a soil. Since the maximum soil depth examined in this study was 40 inches, the qualitative rating categories shown in the Order III SRI which are based on a 60 inch maximum profile were adjusted to account for the shallower profile.

EROSION HAZARD RATING: The Erosion Hazard Ratings were estimates based on the Region 5 Forest Service Erosion Hazard Rating procedure (Form R-5-2500-14). The result is relative rating which characterizes the susceptibility of a soil type to surface erosion (sheet, rill, and gulley erosion) and does not reflect the susceptibility of the soil type to mass failures. The surface erodibility of a given soil type depends upon such factors as surface texture, structure, coarse fragment content, profile permeability, slope, vegetative cover, and climate. Soils with coarse textures, low organic matter, and weak structure tend to be more easily detached by water than finer textured soils with more surface organic matter and strong structure. The erodibility of all soils increases as slope increases.

SUSCEPTIBILITY TO BURNING DAMAGE: Soil damage can sometimes occur from burning of slash. The risk of damage increases proportionately with the intensity of the heat. The damage is primarily related to the loss of organic matter and the volatilization of nutrients, but excessively hot fires can "bake" surface soil causing irreversible hardening of soil aggregates. This has the effect of decreasing fertility due to decreased nutrient storage and release capacity, and decreased water holding capacity. Some soils are more susceptible to damage or reduced fertility than others. Soils with high organic matter content and

finer textures are more resistant to damage and less sensitive to slight reductions in nutrients than are coarse-textured soils. Soils developed from acid igneous rock tend to be more susceptible. The steepness of the slope is also considered in the rating, since surface heat is generally higher on steeper slopes.

PARENT MATERIAL: The parent material is the weathered rock, colluvium, alluvium, or till from which the soils have formed. The rock type comprising the parent material has substantial bearing on the characteristics of a given site, including soil fertility, erodibility, rooting depth, and slope stability. Table 7 shows the number of occurrences of the various types of parent rock in each ecotype. Table 8 presents some of the more significant management implications for each parent rock type.

**Timber:** The timber data included in the tables and graphs with each series and ecological type are a result of the timber sampling done using card 3A (Appendix B). This is a modified compartment inventory analysis (CIA) sampling strategy. The results were obtained using the CIA timber stand data analysis programs at Fort Collins Colorado. Tables and graphs contained in each series contain comparisons of standing softwood and hardwood cubic volume, basal area, site class, and stand density index (Reineke 1933) by ecological type.

## METHODS

### Sampling Strategy:

Potential natural plant communities are analyzed using soils and environmental characteristics and combined with management implications to establish ecological types. The potential natural plant community is the community that would become established if all successional sequences were completed without interference by humans or drastic environmental changes. Natural disturbances are part of potential natural community development. This includes the introduction of naturalized non-native plant species (FSM 2060). Using this definition, our goal is to find and evaluate late seral, undisturbed, self-reproducing plant communities in conjunction with soils and environmental variables.

This document contains the preliminary ecological type classification for the Klamath Province. It is based on seven year's reconnaisance field sampling and input from district personnel. After initial classification development and a minimum of two years field testing, with input from the document users, this document will be revised (if necessary). The classification process itself does not include mapping. Mapping of types or

aggregations of types is being completed concurrently through the Coordinated Resource Inventory program and wildlife habitat analysis.

**Sampling Methods:**

This document results from the ecosystem classification program (Allen 1987) being conducted on the Six Rivers and Klamath National Forests. Late seral stage stands were selected as study sites. Late seral stage stands were located through a review of timber type maps (USDA 1976), and verified through aerial photo analysis and ground reconnaissance. Sample stands were selected using the methodology of Pfister and Arno (1980). This methodology was modified to include only stands older than 150 years which displayed all or most of the characteristics defined by Franklin and others (1981) and the Old-Growth Definition Task Group (1986). Within selected stands, stratified random sampling was used to select the plot locations following the methodology of Noon (1981). This included placing non-overlapping plots within all distinct habitats within a stand. Sampling methods generally followed those described earlier ( Hall 1970; Moir and Ludwig 1983; and Allen and Diaz 1986). Sample plot locations were restricted to forested stands with homogeneous vegetation, seral stage, soils, geology, and landform (Pfister and Arno, 1980). Sample sites were selected after a review of the information on these factors and an extensive aerial photo and ground reconnaissance of the area. Plot size was 0.1 acre for herbs, graminoids, shrubs and understory trees and of variable radius for overstory trees (Bitterlich 1947).

In watersheds with few remaining old-growth stands, all remaining stands were sampled. In designated wilderness areas where the majority of the area is in late seral stage stands, transects were located perpendicular to the slope with plots located every 300 feet (80 meters).

The sampling methods follow the Ecosystem Classification Handbook, FSH 2090.11 SUPP. (Allen 1985). The classification presented here is based on the information collected during the reconnaissance sampling phase. This sampling strategy was used to develop familiarity with vegetation patterns and to develop a preliminary ecological type classification. Examples of the data cards used are included in Appendix A.

For each plot the following loction information were recorded: plot number, national forest, ranger district, forest map number, forest timber compartment, township, range, section, latitude, latitude minutes, longitude, and longitude minutes.

Environment variables

The physical environment was defined by elevation, aspect, percent slope, landform (general topographic characterization), micro-position (position of the plot on the slope), horizontal micro-relief (slope shape parallel to the contours), vertical micro-relief (slope shape across the contours), bare ground percent, surface gravel percent, surface rock percent, potential annual radiation (total annual radiation received for a given aspect, slope and latitude) (Frank and Lee 1966), transformed aspect (aspect transformed to a linear variable from 1-8) (Lewis 1982), and radiation index (ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude) (Frank and Lee 1966).

At each site, a soil pit was dug to a maximum depth of 40 inches or to bedrock. For each pit, data were recorded on: percent surface litter cover, litter thickness, parent material, parent material origin, total soil depth (to a maximum of 40 inches), rootability (whether the soil can be penetrated by roots), A horizon thickness, A horizon texture (using texture by feel), percent A horizon coarse fragments (using 2mm seived soil samples), A horizon color (hue, value, and chroma using Munsell color charts) (Munsell 1975), sub-surface texture, percent sub-surface coarse fragments, sub-surface color, soil drainage class, available water holding capacity (AWC) for the top 20 inches of soil, soil name (classified to family), pH of the surface horizon (using a Hellige-Truog Soil Reaction Tester), and pH of the sub-surface horizon.

### Vegetation variables

At each plot, total percent cover was occularly estimated and recorded for moss, forbs, graminoids, shrubs and trees. All plants were identified to species where possible (nomenclature follows Munz 1973). Abundance was recorded for the herbaceous and graminoid layers only (Allen and Diaz 1986). Estimates of tree height and standing basal area (basal area factor 20 or 40) were recorded at three points per plot using a Speigel relaskop. In addition, diameter at breast height (dbh), total tree age, 10 and 20 year radial growth were recorded for a minimum of one dominant tree per point.

### Data Analysis

Initial classification was accomplished through the use of the polythetic divisive classification technique Two-way Indicator Species Analysis, [TWINSPAN] (Hill 1979). Polythetic devisive techniques have a theoretical advantage over agglomerative techniques since all available information is used to make the topmost decisions. TWINSPAN requires species cover values to avoid

unacceptable rates of misclassification (Gauch 1984). It uses information on all species to group the plots based on similarity of species cover values. The data are first ordinated by reciprocal averaging with the extremes positioned at the polar ends. The samples are then divided into 2 clusters and the process is repeated until some minimum group size is achieved (Gauch 1984). This minimum group adds an element of subjectivity to the classification. This subjectivity can be reduced by applying the **stopping rule** of Hill (1980). Gauch (1984) recommends TWINSPAN because it is effective, robust, uses the original data in the classification rather than a similarity or dissimilarity index, integrates both samples and species, and places most similar samples together. One requirement of classification is that it must have heterogeneous communities to work, because some statistical programs will classify even a random data set (Ludwig and Reynolds 1988). TWINSPAN works best when paired with an ordination technique like detrended correspondence analysis (DECORANA) (Hill 1979) described below.

The classification was then refined using the ordination technique, DECORANA. DECORANA is a detrended form of reciprocal averaging that also uses species cover. It is an objective, effective, robust community centered ordination technique that is particularly effective with heterogeneous data (Gauch 1984). It ordinates both species and sample units and can be used to identify outlier plots and species, and to identify plant association relationships. DECORANA develops a single ordination space partitioning. The DECORANA scores (DCA) can be regressed with environmental variables to identify the underlying environmental meaning of the ordination axes. Multiple regression analysis (Neter and others 1983) is used here to predict change and uncover environmental meaning in ordination scores. The assumptions of multiple regression analysis are that the samples will be drawn from a normal population with equal variances.

The vegetation classification was further refined with Stepwise Discriminant Analysis (Jennrich and Sampson, 1985). Discriminant analysis forms linear combinations of the independent variables and uses them to classify cases into groups (Norusis 1986). Discriminant analysis is used to test membership in each group identified above and to identify the discriminating species and environmental variables. It identifies plots that are misclassified through posterior probabilities of group membership and lists the variables correlated with each discriminant function. The assumptions of discriminant analysis are that each group must be a sample from a multivariate normal population and the population covariance matrices must all be equal (Norusis 1986).

The programs Compartment Inventory Analysis (CIA) and

Forest Inventory Analysis (FIA) (USDA 1986), were used to analyze the tree data. Information generated by these programs included; standing cubic volume, cubic volume growth, basal area, basal area growth, site class, and trees per acre by species and dbh class. The statistical package SPSSPC+ (Norusis 1988) was used to develop descriptive statistics (mean, standard deviation, standard error), and to calculate stand density index (SDI) (Reineke 1933).

**USE OF PLANT ASSOCIATION KEY**

The vegetation series keys begin on page 23, they are followed by sub-series and plant association keys. Easy to identify trees and shrubs are used to key to the ecological type. Both common names and codes names are used in the key to familiarize the user with both forms. Presence or absence is used as much as possible to key to a plant association. However, in some situations this is not possible. In these cases, percentages are used to differentiate between plant associations. The percentages stated (i.e. 1%, 2%, 5%, and 10%) are not meant to be strictly followed. Rather, they are used to indicate occasional occurrences of a species (<1%, <2%), or abundant cover (>10%).

Characteristic cover is used in this document rather than average cover. Characteristic cover is defined as the percent cover one could expect to find in a plant association if the species were present in this type. Characteristic cover is displayed along with constancy. Constancy is the percent of times a species was found to occur in a plant association.

Before attempting to use the keys, you should walk around the stand and familiarize yourself with the vegetation. The key and ecological type descriptions are constructed from data collected in late seral stage stands. Therefore, if you are trying to use them in younger or disturbed stands you should be aware that the percent species cover may not apply. The indicator species should all be present, they may however, be of low cover.

The key is structured as choice between two statements. To use the key you first read both choices carefully and choose the one that applies to your stand. This process is repeated until you end up at a plant association name. From here you proceed to the page number of the selected plant association and check the description (environment and vegetation) to make sure that you have keyed to the correct association. If the description does not fit, go back and try the key again.

## FEEDBACK

If you have comments on the classification or feel that the key does not work in your area, please drop me a line (DG T.Jimerson:R05F10A) or use the feedback form contained in Appendix C. Indicate your location, name, the exact location you were using the key, the name of the type you keyed to, and the problem area in the key, or your comments on the management implications.

**Note:** This classification will be periodically revised. The revision will include refining the classification, adding notes from the users, adding the management implications, and potential productivity to each plant association description.

## RESULTS

The preliminary results of the vegetation classification identified 157 plant associations and 51 sub-series, within 13 vegetation series (fig 2). The Douglas-fir series had the highest number of sub-series, 11, while the white fir series had the highest number of plant associations 41. The series with the greatest extent in the study area, tanoak, contained 7 sub-series and 38 plant associations.

Plant associations changed in response to the three primary environment gradients; elevation, moisture, and parent material. The relationships of each vegetation series to environment are displayed in figures 3 and 4. The redwood series was the coolest and wettest of all series identified in the study area. It is located nearest to the Pacific Ocean in areas with coastal fog. Hence, it has the coolest mean summer air temperatures and the highest available moisture. It is followed in available moisture by the Port-Orford cedar series, which is generally located adjacent to streams or in areas with sub-surface water flow. The tanoak series was ranked as mesic in its moisture requirements and had the second lowest mean elevation to redwood. In areas where available moisture is lacking the tanoak series is restricted to lower one-third slope positions where available moisture is highest. The Douglas-fir series replaces the tanoak series on warmer/drier sites where available moisture becomes limited and elevation rises. The white fir series replaces Douglas-fir as we rise in elevation and move into the cooler, frigid soil temperature regime. The red fir series was found on the highest elevation sites with the coldest mean winter air temperatures. Moisture conditions here varied by plant association according to soil depth, parent material, slope shape, and slope position. Intermixed with the red fir series in shaded draws on the coldest sites was the mountain hemlock series. This series is of limited

extent within the study area. Shifting from the cold, high elevation sites to the hot, mid-elevation slopes we find the grassland series. It occured on the warmest sites with the lowest available moisture. The grassland series tended to be found on hot southwest facing slopes with shallow soils and high soil coarse fragments. The white oak and black oak series were usually found in close proximity to the grassland series forming a mosaic. They were usually found on sites with deeper soils and higher water holding capacity, particularly in the case of black oak. The western white pine, knobcone pine, lodgepole pine, and Jeffrey pine series were found almost entirely on dry, harsh sites, with soils derived from serpentine parent material.

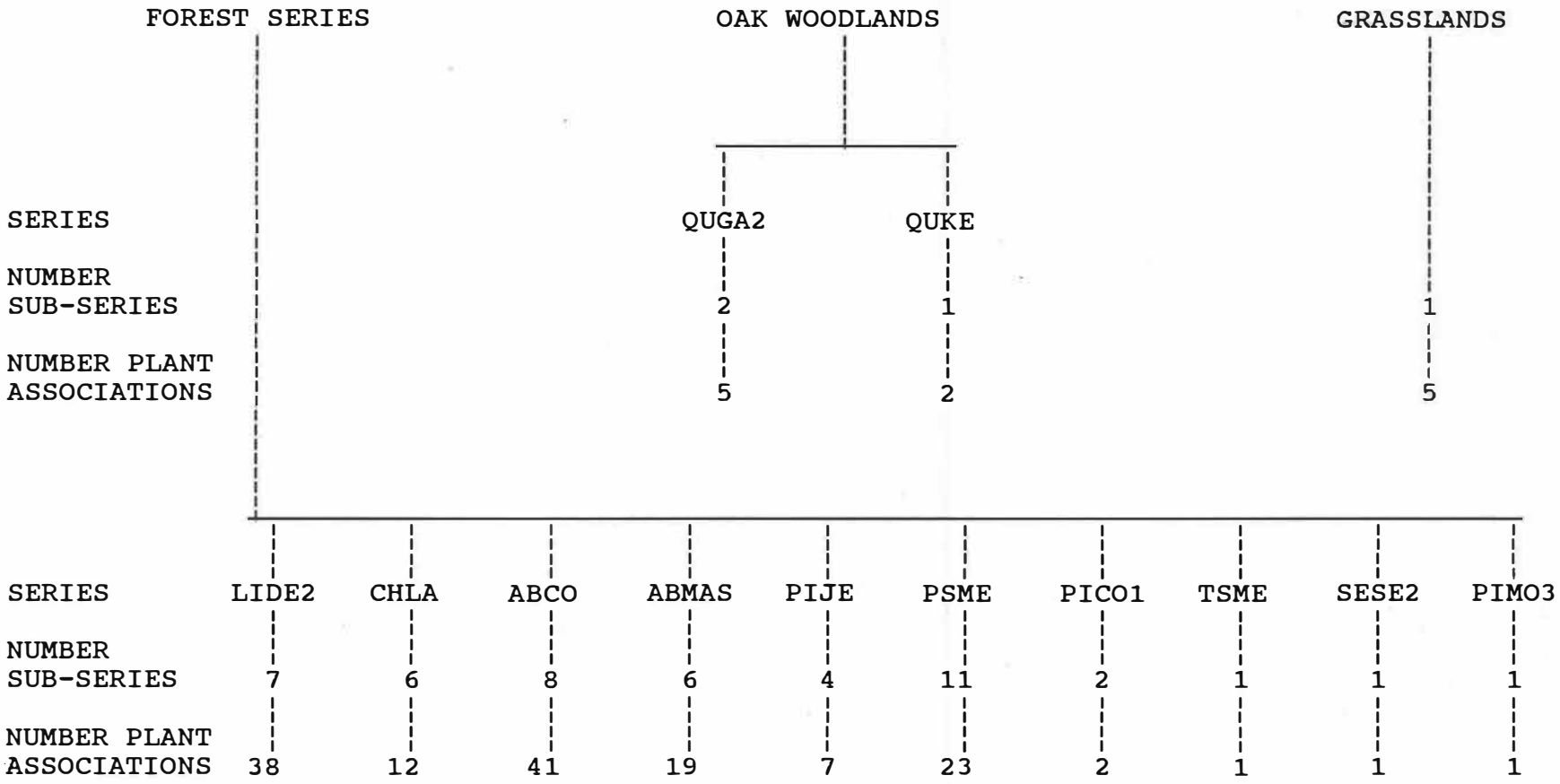


Figure 2. Dendrogram of vegetation series, number of sub-series, and plant associations within the study area.

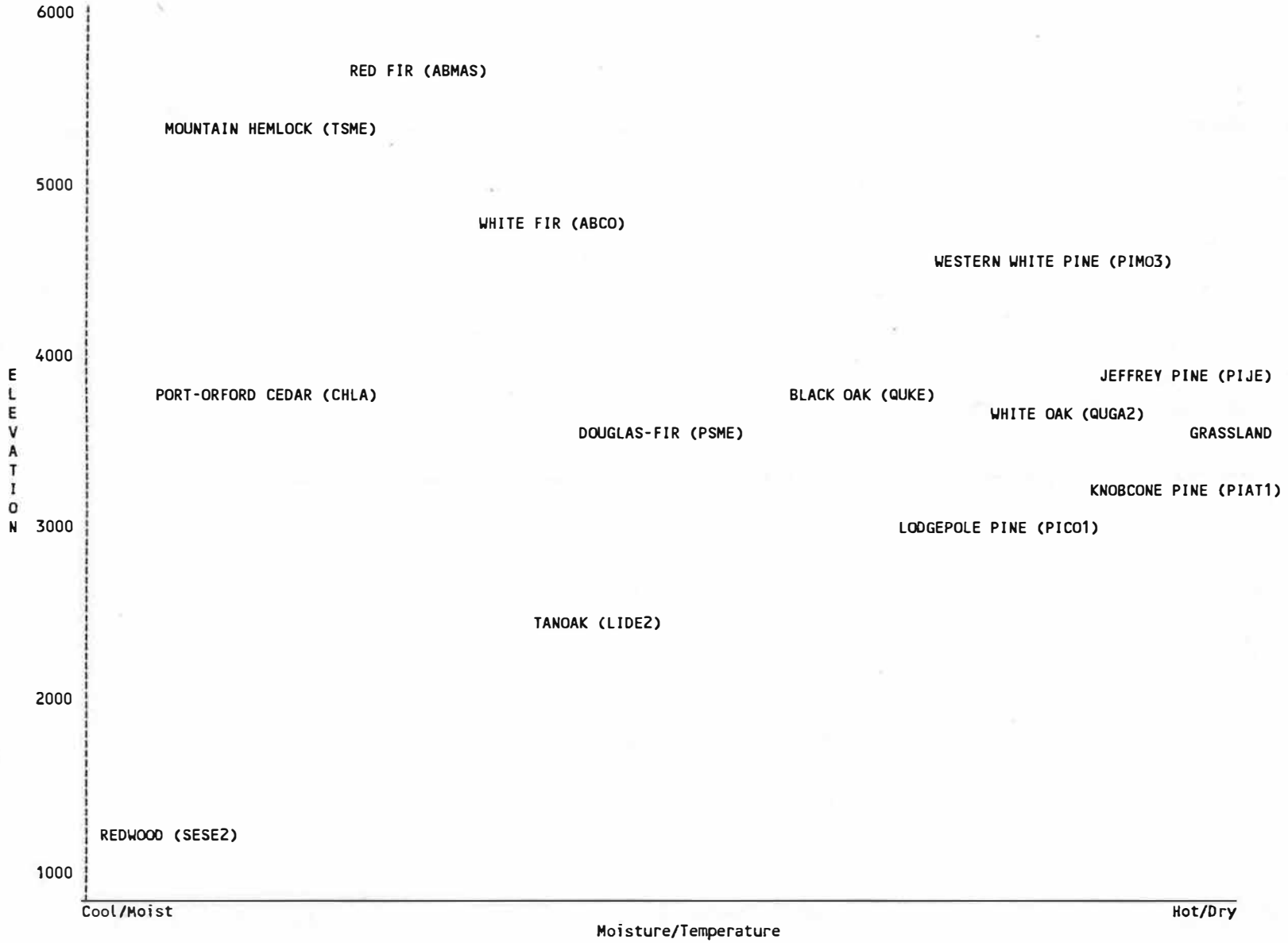


Figure 3. Relative positions of forest series in relation to elevation, moisture, and temperature.

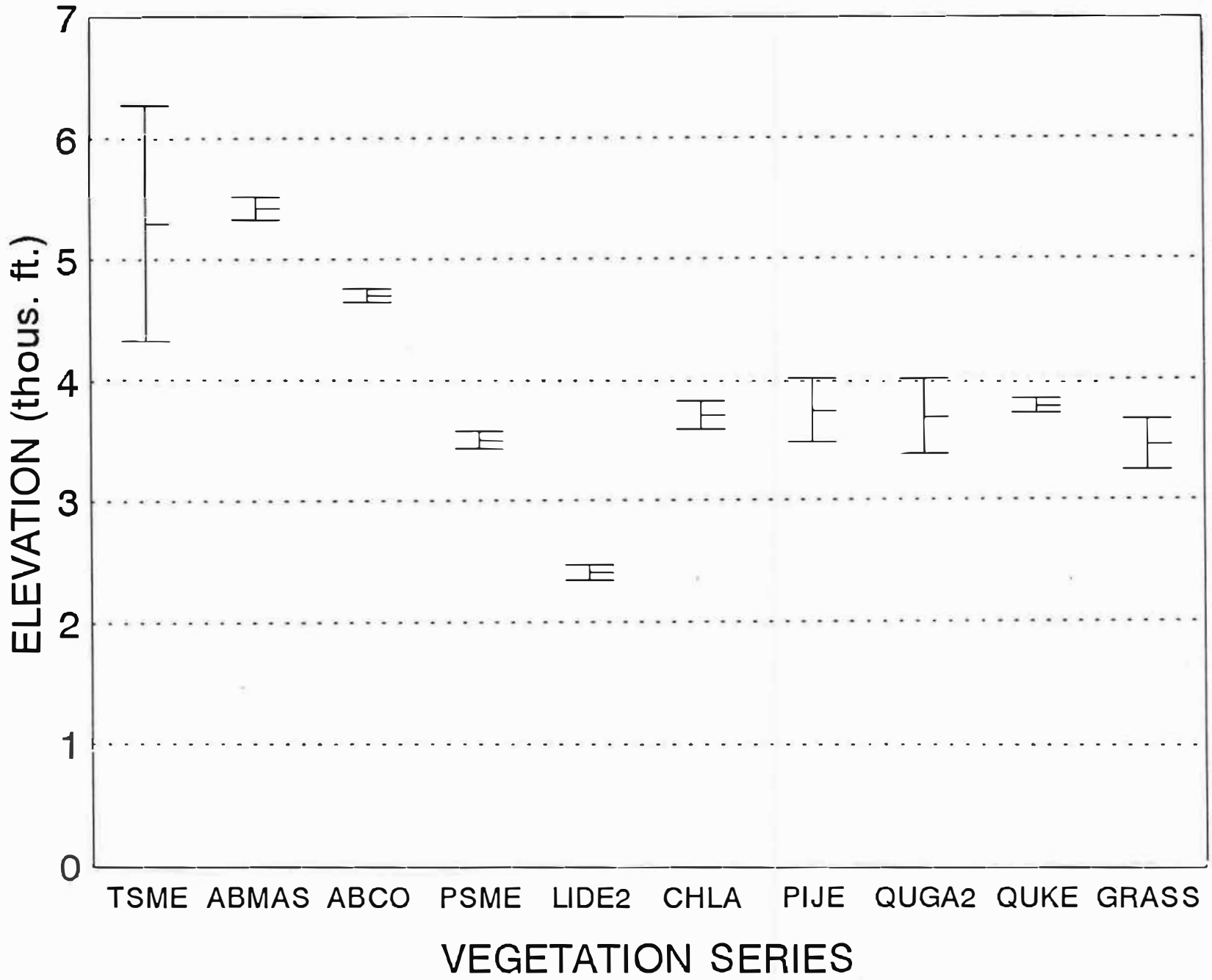


Figure 4. Mean elevation with standard error for vegetation series of the Klamath Province.

# SERIES AND SUB-SERIES KEYS FOR THE KLAMATH PROVINCE

3-30-93

## KEY TO SERIES — SECTION

1a. Tree cover <10%, forb layer dominated by grass _____ **Grasslands**

1b. Tree cover >10%, or not as above _____ 2

2a. Tree layer dominated by white oak or black oak _____ **Oak Woodlands** 3

3a. Tree layer dominated by White oak _____ **White Oak Series**

3b. Tree layer dominated by Black oak _____ **Black Oak Series**

2b. Tree layer dominated by other species ___ 4

4a. Redwood cover >20% and primary regenerating species _____ **Redwood Series**

4b. Redwood absent or not as above _____ 5

5a. Mountain Hemlock cover >10% and primary regenerating species _____ **Mountain Hemlock Series**

5b. Mountain Hemlock absent, or not as above _____ 6

6a. Port-Orford cedar cover >20% and primary regenerating species _____ **Port-Orford cedar Series**

6b. Port-Orford cedar absent, or not as above _____ 7

7a. True fir >20% total tree cover and primary regenerating species ____ 8

8a. Red fir cover exceeds white fir cover and is > 20% and the primary regenerating species _____ **Red Fir Series**

8b. White fir cover > 20% and primary regenerating species _____ **White Fir Series**

7b. True fir absent or not as above ____ 9

9a. Lodgepole pine present and cover >20% _____ **Lodgepole Pine Series**

9b. Lodgepole pine absent or not as above _____ 10

10a. Jeffrey pine cover > 10% and reproducing successfully_____ **Jeffrey Pine Series**

10b. Jeffrey pine absent or not as above _____ 11

11a. Tanoak cover > 10% and present in regeneration layer _____ **Tanoak Series**

11b. Tanoak cover < 10%, or not as above_____ 12

12a. Douglas-fir dominant in overstory and reproducing successfully___ **Douglas-fir Series**

12b. Douglas-fir absent or not as above_____ 13

13a. Knobcone pine dominant cover and present in regeneration layer_ **Knobcone Pine Series**

13b. Knobcone pine absent or not as above_____ 14

14a. Western white pine present and reproducing successfully_____ **Western White Pine Series**

14b. Western white pine absent or not as above_____ Go back to the beginning and try again.

# KEYS TO SUB-SERIES AND PLANT ASSOCIATIONS

## GRASSLANDS

1a. Idaho fescue present ≥ 20% cover and dominant grass species_____ FEID/ACLA2

1b. Idaho fescue absent or not as above_____ 2

2a. Rush present ≥ 20% cover_____ JUN2-HOLA1

2b. Rush absent or not as above_____ 3

3a. Dogtail grass present ≥ 5% cover_____ 4

4a. Lagophylla present_____ CYEC/LAG

4b. Lagophylla absent_____ 5

5a. Tall oatgrass present ≥ 20% cover_____ AREL1-BRMO2

5b. Tall oatgrass absent or not as above__ 6

6a. Dogtail dominant grass and lotus ≥ 2% cover_____ CYEC-BRMO2/TAOF

6b. Not as above_____ Not yet described

3b. Dogtail grass absent or not as above____ Not yet described

## WHITE OAK SERIES

1a. Black oak present and often co-dominant with white oak_____ 2

**White Oak-Black Oak Sub-series**

2a. Grass layer dominated by AREL_____ QUGA2-QUKE/AREL

2b. Not as above_____ 3

3a. Bigleaf maple present and ≥ 5% cover_____ QUGA2-QUKE-ACMA

3b. Bigleaf maple absent or not as above_____ 4

4a. Firecracker flower present_____ QUGA2-QUKE/BRID

4b. Not as above_____ Not yet described

1b. Black oak absent or not as above_____ 5

5a. Douglas-fir present and ≥ 5 cover_____ 6

**White Oak-Douglas-fir Sub-series**

6a. California fescue dominates grass layer___ QUGA2-PSME/FECA

6b. Not as above_____ Not yet described

5b. Douglas-fir absent or not as above_____ 7

**White Oak Sub-series**

7a. Shrub layer dominated by Brewer oak_____ QUGA2-QUGAB/FECA

7b. Brewer oak absent or not as above_____ Not yet described

## BLACK OAK SERIES

1a. Douglas-fir present and ≥ 10% cover_____ 2

**Black Oak-Douglas-fir Sub-series**

2a. Bigleaf maple present and ≥ 5% cover_____ QUKE-PSME-ACMA

2b. Bigleaf maple absent or not as above_____ Not yet described

1b. Douglas-fir absent or not as above_____ 3

**Black Oak Sub-series**

3a. Bigleaf maple present and ≥ 5% cover_____ QUKE-ACMA

3b. Bigleaf maple absent or not as above_____ Not yet described

## REDWOOD SERIES

1a. Douglas-fir present and ≥ 20% cover _____ 2

**Redwood-Douglas-fir Sub-series**

2a. Evergreen huckleberry and salal present_____ SESE2-PSME/VAOV-GASH

2b. Not as above_____ Not yet described

1a. Douglas-fir absent or not as above_____ Not yet described

## MOUNTAIN HEMLOCK SERIES

1a. Sadler oak present and ≥ 5% cover_____ TSME/QUSA

1b. Not as above_____ Check other series

## PORT-ORFORD CEDAR SERIES

1a. White fir present and ≥ 2% in overstory____ 2

**Port-Orford cedar-White Fir Sub-series**

2a. Western azalea dominant shrub and cover ≥ 5%_____ CHLA-ABCO/RHOC

2b. Western azalea absent or not as above___ 3

3a. Western white pine present and ≥ 2%_____ CHLA-ABCO-PIMO3/QUVA

3b. Western white pine absent or not as above_____ 4

4a. Huckleberry oak present and ≥ 10% cover_____ CHLA-ABCO/QUVA

4b. Huckleberry oak absent or not as above_____ 5

5a. Sadler oak present and ≥ 10% cover_____ CHLA-ABCO/QUSA

5b. Sadler oak cover < 10% cover, herb cover high_____ CHLA-ABCO/HERB

1b. White fir absent or not as above_____ 6

**Port-Orford cedar-Red Fir Sub-series**

6a. Red fir present and > 2% cover_____ CHLA-ABMAS/QUSA-VAME

6b. Red fir absent or not as above_____ 7

7a. Huckleberry oak ≥ 10% cover _____ 8

**Port-Orford cedar-Western White Pine Sub-series**

8a. Western white pine present_____ CHLA-PIMO3/QUVA

**Port-Orford cedar-Douglas-fir Sub-series**

8b. Douglas-fir present _____ CHLA-PSME/QUVA

7b. Huckleberry oak absent
or not as above_____ 9

**Port-Orford cedar-Incense cedar Sub-series**

9a. Incense cedar present and
≥ 5% cover_____ CHLA-LIDE3-ALRH

9b. Incense cedar absent
or not as above_____ 10

**Port-Orford Cedar-Shrub Sub-series**

10a. Western azalea present and
≥ 10 % cover_____ CHLA/RHOC

10b. Western azalea absent
or not as above_____ 11

11a. Salal present and > 5% cover__ 12

12a. Pacific rhododendron present
and greater than 2% cover___ CHLA/RHMA-GASH

12b. Pacific Rhododendron absent
or not as above_____ CHLA/GASH

11b. Salal absent or not as above__ Go back and try again

## RED FIR SERIES

1a. Brewer's spruce present and ≥ 10% cover____ 2

**Red Fir-Brewer's Spruce Sub-series**

2a. Sadler oak and
thinleaf huckleberry present_____ ABMAS-PIBR/QUSA-VAME

2b. Not as above_____ ABMAS-PIBR Sub-series

1b. Brewer's spruce absent or not as above_____ 3

3a. Mountain hemlock present_____ 4

**Red Fir-Mountain Hemlock Sub-series**

4a. One-sided wintergreen present_____ ABMAS-TSME/PYSE

4b. Not as above_____ ABMAS-TSME Sub-series

3b. Not as above_____ 5

5a. Western white pine
and incense cedar present_____ ABMAS-PIMO3 Sub-series

**Red Fir-Western White Pine Sub-series**

5b. Not as above_____ 6

**Red Fir-Shrub Sub-series**

6a. Sadler oak and huckleberry oak present_____ ABMAS/QUSA-QUVA

6b. Not as above_____ 7

7a. Pacific rhododendron present
and ≥ 10% cover_____ ABMAS/RHMA

7b. Pacific rhododendron absent
or not as above_____ 8

8a. White fir usually ≤ 5% cover, Sadler oak
and pinemat manzanita present_____ ABMAS/QUSA-ARNE2

8b. Not as above_____ 9

9a. White fir usually < 5% cover,
shrub layer sparse or absent_____ 10

**Red Fir-Herb Sub-series**

10a. One-sided and whitevein
pyrola present_____ ABMAS/PYSE

10b. Not as above_____ ABMAS/PYPI/MENDOCINO

9b. Not as above_____ 11

**Red Fir-Incense cedar Sub-series**

11a. Incense cedar ≥ 10% cover_____ ABMAS-LIDE3 SUB-SER

11b. Incense cedar absent or not as above__ 12

**Red Fir-White Fir Sub-series**

12a. Sadler oak present and ≥ 10% cover___ ABMAS-ABCO/QUSA

12b. Sadler oak absent or not as above____ 13

13a. Lodgepole pine present ≥ 5% cover___ ABMAS-ABCO-PICO1

13b. Lodgepole pine absent
or not as above_____ 14

14a. Pinemat manzanita present
and ≥ 10% cover_____ ABMAS-ABCO/ARNE2

14b. Pinemat manzanita absent
or not as above_____ 15

15a. Mountain maple ≥ 2% cover,
Sadler oak present_____ ABMAS-ABCO/ACGLT

15b. Not as above_____ 16

16a. Mountain arnica present
and ≥ 10% cover_____ ABMAS-ABCO/ARLA2

16b. Mountain arnica absent
or not as above_____ 17

17a. Vanillaleaf present
and ≥ 10% cover_____ ABMAS-ABCO/ACTR-CHUM

17b. Vanillaleaf absent
or not as above_____ 18

18a. Siskiyou penstemon and mountain
monardella present and ≥ 2%___ ABMAS-ABCO/PEAN-MOOD

18b. Not as above_____ 19

19a. Creeping snowberry, wild rose, and
Siskiyou penstemon present___ ABMAS-ABCO/SYMO-R/PE

19b. Not as above_____ 20

20a. Braken fern present and creeping snowberry absent or ≤ 1 %___ ABMAS-ABCO/PTAQL

20b. Not as above_____ ABMAS-ABCO/SYMO/PYPI

## WHITE FIR SERIES

1a. Tanoak present and ≥ 10% cover_____ 2

**White Fir-Tanoak Sub-series**

2a. Dwarf Oregon-grape present_____ ABCO-LIDE2/BENE1

2b. Dwarf Oregon-grape absent or not as above_ ABCO-LIDE2 Sub-series

1b. Tanoak absent or not as above_____ 3

3a. Brewer's spruce present_____ 4

**White Fir-Brewer's Spruce Sub-series**

4a. Sadler oak and thinleaf huckleberry present_____ ABCO-PIBR/QUSA-VAME

4b. Not as above_____ ABCO-PIBR Sub-series

3b. Brewer's spruce absent or not as above____ 5

5a. Red fir present and ≥ 10% cover_____ 6

**White Fir-Red Fir Sub-series**

6a. Sadler oak present and ≥ 2% cover_____ ABCO-ABMAS/QUSA

6b. Sadler oak absent or not as above_____ 7

7a. Threeleaf anemone present_____ ABCO-ABMAS/ANDE

7b. Threeleaf anemone absent_____ 8

8a. Lodgepole pine present ≥ 5% cover_____ ABCO-ABMAS-PICO1

8b. Lodgepole pine absent or not as above_ 9

9a. White veined pyrola present_____ ABCO-ABMAS/PYPI

9b. White veined pyrola absent_____ ABCO-ABMAS Sub-series

5b. Red fir absent or not as above _____ 10

10a. Brewer oak present _____ ABCO/QUGAB/FECA

10b. Brewer oak absent _____ 11

11a. Ponderosa pine present ≥ 5% cover _____ ABCO-PIPO Sub-series

11b. Ponderosa pine absent or not as above _ 12

12a. White fir cover ≥ 50% and Douglas-fir cover < 10% _____ 13

**White Fir-White Fir Sub-series**

13a. Serviceberry present _____ ABCO/Amalanchier

13b. Serviceberry absent _____ 14

14a. Snowberry present, often with wild rose _____ ABCO/ROGY-SYMO

14b. Snowberry absent or not as above ___ ABCO/CHME2-PYPI

12b. Not as above _____ 15

15a. White fir and Douglas-fir present and ≥ 30% cover _____ 16

16a. Heart-leaved arnica present _____ ABCO/SYMO/ARCO3

16b. Heart-leaved arnica absent _____ 17

15b. Not as above _____ 17

17a. Chinquapin present and ≥ 10% cover _ 18

**White Fir-Chinquapin Sub-series**

18a. Dwarf Oregon-grape and vanilla-leaf present _____ ABCO-CACH2/BENE1/ACTR

18b. Not as above _____ ABCO-CACH2-PILA/CHUMO

17b. Chinquapin absent or not as above __ 19

19a. Incense cedar present and ≥ 10% cover _____ 20

**White Fir-Incense Cedar Sub-series**

20a. Black oak present and ≥ 5% cover_ ABCO-LIDE3-QUKE

20b. Black oak absent or not as above_ 21

21a. Ponderosa pine present and ≥ 5% cover_____ ABCO-LIDE3-PIPO

21b. Ponderosa pine absent or not as above_____ 22

22a. Huckleberry oak present and ≥ 5% cover_____ ABCO-LIDE3/QUVA

22b. Huckleberry oak absent or not as above_____ 23

23a. Douglas-fir ≥ 20% cover_____ ABCO-LIDE3/SYMO

23b. Not as above_____ ABCO-LIDE3/PYPI

19b. Incense cedar absent or not as above_____ 24

**White Fir-Douglas-fir Sub-series**

24a. Sadler oak present and ≥ 5% cover 25

25a. Pacific rhododendron present and ≥ 10% cover_____ ABCO-PSME/QUSA-RHMA

25b. Pacific rhododendron absent or not as above_____ 26

26a. Pinemat manzanita present and ≥ 5% cover_____ ABCO-PSME/QUSA-ARNE2

26b. Pinemat manzanita absent or not as above_____ 27

27a. Huckleberry oak present and ≥ 5% cover_____ ABCO-PSME/QUSA-QUVA

27b. Huckleberry oak absent or not as above_____ ABCO-PSME/QUSA

24b. Sadler oak absent or not as above 28

28a. Huckleberry oak present and ≥ 10% cover_____ ABCO-PSME/QUVA

28b. Huckleberry oak absent
or not as above_____ 29

29a. Broad-leaved arnica present
and ≥ 10% cover_____ ABCO-PSME/ARLA2

29b. Broad-leaved arnica absent
or not as above_____ 30

30a. Grass cover ≥ 10%_____ ABCO-PSME/GRASS

30b. Grass absent or not as above__ 31

31a. Thimbleberry present
and ≥ 10% cover_____ ABCO-PSME/RUPA2

31b. Thimbleberry absent
or not as above_____ 32

32a. Beargrass present
and ≥ 30% cover_____ ABCO-PSME/XETE

32b. Beargrass absent
or not as above_____ 33

33a. Mountain maple present
and ≥ 2% cover_____ ABCO-PSME/ACGLT

33b. Mountain maple absent
or not as above_____ 34

34a. Vine maple present
and ≥ 5% cover_____ ABCO-PSME/ACCI

34b. Vine maple absent
or not as above_____ 35

35a. Bigleaf maple present
and ≥ 5% cover_____ ABCO-PSME-ACMA

35b. Bigleaf maple absent
or not as above_____ 36

36a. Twinflower present
and ≥ 10% cover_____ ABCO-PSME/ROGY/LIBOL

36b. Twinflower absent
or not as above_____ 37

37a. Wild rose and

snowberry present_____ ABCO-PSME/ROGY-SYMO

37b. Not as above_____ 38

38a. Hazelnut present
and ≥ 5% cover_____ ABCO-PSME/COCOC

38b. Hazelnut absent
or not as above_____ 39

39a. Vanilla-leaf present
and ≥ 5% cover_____ ABCO-PSME/ACTR

39b. Vanilla-leaf absent
or not as above_____ 40

40a. Canyon live oak
present and ≥ 5%___ 41

41a. Tall Oregon-grape
present_____ ABCO-PSME-QUCH2/BEAQ

41b. Tall Oregon-grape
absent_____ 42

42a. White hawkweed and
grass present____ ABCO-PSME-QUCH2/HIAL/GR

42b. Not as above_____ 43

43a. White veined wintergreen
present_____ ABCO-PSME-QUCH2/PYPI

43b. White veined wintergreen
absent_____ 44

40b. Canyon live oak absent
or not as above____ 44

44a. Black oak present
and ≥ 5% cover____ ABCO-PSME-QUKE

44b. Black oak absent
or not as above___ 45

45a. Western modesty present
and ≥ 10% cover__ ABCO-PSME/WHMO

45b. Western modesty absent
or not as above__ Go back and try again

## LODGEPOLE PINE SERIES

## JEFFREY PINE SERIES

1a. White fir present _____ 2

  2a. Huckleberry oak present _____ PIJE-LIDE3/QUVA

  2b. Huckleberry oak absent _____ PIJE-ABCO/IRI

1b. White fir absent _____ 3

  3a. Herb layer dominated by grass _____ 4

    4a. Douglas-fir in overstory cover ≥ 20% _____ 5

      5a. Shrub layer dominated by huckleberry oak, cover ≥ 10% _____ PIJE-PSME/QUVA/FECA

      5b. Not as above _____ PSME-PIJE/FECA

    4b. Not as above _____ 6

      6a. Shrub layer dominated by buck brush _____ PIJE/CECU

      6b. Not as above _____ PIJE/FEID

  3b. Not as above _____ 7

    7a. Shrub layer dominated by huckleberry oak _____ PIJE-LIDE3/QUVA/XETE

    7b. Sadler oak dominant shrub _____ PIJE/QUSA/XETE

## TANOAK SERIES

1a. Port-Orford cedar present and ≥ 10% cover _ 2

**Tanoak-Port-Orford cedar Sub-series**

  2a. Evergreen huckleberry present and ≥ 2% cover _____ 3

3a. Western azalea present and ≥ 2% cover__ LIDE2-CHLA/VAOV-RHOC

3b. Western azalea absent or not as above__ 4

4a. California bay present and ≥ 2% cover_____ LIDE2-CHLA-UMCA1/VAOV

4b. California bay absent or not as above_____ LIDE2-CHLA/VAOV

2b. Evergreen huckleberry absent or not as above_____ 5

5a. White or red alder present and ≥ 5% cover_____ LIDE2-CHLA-ALRH-RIPARIAN

5b. White or red alder absent or not as above_____ 6

6a. Vine maple present and ≥ 10% cover_____ LIDE2-CHLA/ACCI

6b. Vine maple absent or not as above_____ 7

7a. Red huckleberry present and ≥ 5% cover_____ LIDE2-CHLA/VAPA

7b. Red huckleberry absent or not as above_____ LIDE2-CHLA/BENE1/LIBOL

1b. Port-Orford cedar absent or not as above__ 8

8a. Incense cedar present and ≥ 5% cover_____ 9

**Tanoak-Incense Cedar Sub-series**

9a. California fescue present and ≥ 2% cover_____ LIDE2-LIDE3/FECA

9b. California fescue absent or not as above_____ 10

8b. Incense cedar absent or not as above_____ 10

10a. Canyon live oak present and ≥ 5% cover_____ 11

**Tanoak-Canyon Live Oak Sub-series**

11a. Evergreen huckleberry present and ≥ 10% cover _____ LIDE2-QUCH2/VAOV

11b. Evergreen huckleberry absent or not as above _____ 12

12a. Dwarf Oregon grape present and ≥ 2% cover _____ 13

13a. Salal present and ≥ 5% cover _____ LIDE2-QUCH2/BENE1-GASH

13b. Salal absent or not as above _____ LIDE2-QUCH2/BENE1

12b. Dwarf Oregon grape absent or not as above _____ 14

14a. Black oak present and ≥ 2% cover ____ LIDE2-QUCH2-QUKE/RHDI

14b. Black oak absent or not as above ____ 15

15a. Poison oak present and ≥ 2% cover __ LIDE2-QUCH2/RHDI

15b. Poison oak absent or not as above __ LIDE2-QUCH2/ROCKPILE

10b. Canyon live oak absent or not as above _____ 16

16a. Chinquapin present and ≥ 5% cover _____ 17

**Tanoak-Chinquapin Sub-series**

17a. Salal present and ≥ 10% cover _____ 18

18a. Pacific rhododendron present and ≥ 10% cover _____ LIDE2-CACH2/RHMA-GASH

18b. Pacific rhododenron absent or not as above _____ 19

19a. Evergreen huckleberry present and ≥ 20% cover _____ LIDE2-CACH2/VAOV-GASH

19b. Evergreen huckleberry absent or not as above _____ LIDE2-CACH2/GASH

17b. Salal absent or not as above _____ 20

16b. Chinquapin absent or not as above _____ 21

21a. Maple (bigleaf or vine)

present and ≥ 5% cover_____ 22

**Tanoak-Maple Sub-series**

22a. Vine maple present and ≥ 10% cover__ 23

23a. Salal present and ≥ 10% cover_____ LIDE2/ACCI-GASH

23b. Salal absent or not as above_____ LIDE2/ACCI

22b. Vine maple absent or not as above___ 24

24a. Bigleaf maple present and ≥ 5% cover_____ 25

25a. Swordfern present_____ LIDE2-ACMA/POMU1

25b. Swordfern absent_____ 26

24b. Bigleaf maple absent or not as above_____ 26

21b. Maple absent or not as above_____ 26

26a. Black oak present and ≥ 2% cover, total shrub cover < 10%_____ 27

**Tanoak-Black Oak Sub-series**

27a. Wild rose present_____ LIDE2-QUKE/ROSE

27b. Wild rose absent_____ 28

26b. Black oak absent or not as above____ 28

**Tanoak-Shrub Sub-series**

28a. Evergreen huckleberry present and ≥ 10% cover_____ 29

29a. Pacific rhododenron present and ≥ 10% cover_____ 30

30a. Huckleberry oak present and ≥ 5% cover_____ LIDE2/RHMA-QUVA

30b. Huckleberry oak absent or not as above_____ 31

31a. Salal present and ≥ 10% cover and

exceeds evergreen huckleberry____ LIDE2/RHMA-GASH

31b. Salal absent or not as above_____ LIDE2/RHMA-VAOV

29b. Pacific rhododendron absent or not as above_____ 32

32a. Salal present and ≥ 10% cover and exceeds evergreen hucklberry_____ LIDE2/VAOV-GASH

32b. Salal absent or not as above_____ LIDE2/VAOV

28b. Evergreen huckleberry absent or not as above_____ 33

33a. Huckleberry oak present and ≥ 5% cover_____ LIDE2/RHMA-QUVA

33b. Huckleberry oak absent or not as above_____ 34

34a. Salal present and ≥ 10% cover_____ 35

35a. Dwarf Oregon grape present and ≥ 5% cover_____ LIDE2/BENE1-GASH

35b. Dwarf Oregon grape absent or not as above_____ LIDE2/GASH

34b. Salal absent or not as above_____ 36

36a. California bay present and ≥ 10% cover_____ LIDE2-UMCA1/RHDI

36b. California bay absent or not as above_____ 37

37a. Poison oak and hairy honeysuckle present_____ LIDE2/RHDI-LOHIV

37b. Not as above_____ 38

38a. Hazelnut present and dwarf Oregon grape absent_____ LIDE2/COCOC

38b. Not as above_____ 39

39a. Dwarf Oregon grape, snowberry and wild rose present_____ LIDE2/BENE1/DIHO2

39b. Not as above_____ LIDE2/BENE1

## DOUGLAS-FIR SERIES

1a. Alder cover high usually > 50%_____ 2

**Douglas-fir-Alder Sub-series**

2a. Vine maple and candyflower present_____ PSME-ALOR/ACCI/MOSI

2b. Vine maple or candyflower absent_____ 3

1b. Alder absent or not as above_____ 3

**Douglas-fir-Jeffrey Pine Sub-series**

3a. Jeffrey pine ≥ 10% cover and California fescue ≥ 5% cover_____ PSME-PIJE/FECA

3b. Jeffrey pine or California fescue absent or not as above_____ 4

**Douglas-fir-Incense Cedar Sub-series**

4a. Incense cedar ≥ 10% cover and California fescue ≥ 2% cover_____ PSME-LIDE3/FECA

4b. Incense cedar or California fescue absent or not as above_____ 5

**Douglas-fir-White Oak Sub-series**

5a. White oak ≥ 5% cover and total grass cover ≥ 5%_____ PSME-QUGA2/GRASS

5b. White oak absent or not as above_____ 6

6a. Canyon live oak present and ≥ 10% cover_____ 7

**Douglas-fir-Canyon Live Oak Sub-series**

7a. Pacific madrone and poison oak present, tanoak < 2% cover_____ PSME-QUCH2-ARME3/RHDI

7b. Not as above_____ 8

8a. Surface rock ≥ 25% cover_____ PSME-QUCH2/ROCKPILE

8b. Not as above _____ 9

9a. Tanoak cover ≥ 5% _____ PSME-QUCH2-LIDE2

9b. Not as above _____ 10

6b. Canyon live oak absent or not as above _____ 10

10a. Chinquapin present and ≥ 5% cover ___ 11

**Douglas-fir-Chinquapin Sub-series**

11a. Pacific rhododendron ≥ 5% cover ____ 12

12a. Sadler oak present and ≥ 5% cover _____ PSME-CACH2/RHMA-QUSA/XETE

12b. Sadler oak absent or not as above _ 13

13a. Dwarf Oregon grape present and ≥ 2% cover _____ PSME-CACH2/RHMA-BENE1

13b. Dwarf Oregon grape absent or not as above _____ 14

11b. Pacific rhododendron absent or not as above _____ 14

14a. Beargrass present and ≥ 10% cover _ PSME-CACH2/XETE

14b. Beargrass absent or not as above __ 15

15a. Tanoak present and ≥ 5% cover ____ 16

16a. White fir present and ≥ 5% cover _____ PSME-CACH2-LIDE2/BENE1

16b. White fir absent or not as above _____ PSME-CACH2-LIDE2

15b. Tanoak absent or not as above ____ 17

10b. Chinquapin absent or not as above ___ 17

**Douglas-fir-Low Productivity Sub-series**

17a. California bay present and ≥ 10% cover _____ PSME-UMCA1/RHDI

17b. California bay
absent or not as above_____ 18

18a. Huckleberry oak
present and ≥ 5% cover_____ 19

19a. Dwarf tanbark present_____ PSME/QUVA-LIDEE

19b. Dwarf tanbark absent_____ PSME/QUVA

18b. Huckleberry oak absent
or not as above_____ 20

**Douglas-fir-High Productivity Sub-series**

20a. Vine maple present
and ≥ 10% cover_____ PSME/ACCI-BENE1

20a. Vine maple absent or not as above 21

21a. Bigleaf maple present
and ≥ 10% cover_____ PSME-ACMA/POMU1

21b. Bigleaf maple absent
or not as above_____ 22

22a. Tanoak present and ≥ 5% cover__ 23

**Douglas-fir-Tanoak Sub-series**

23a. Western modesty
present and ≥ 2% cover_____ PSME-LIDE2/WHMO

23b. Western modesty absent
or not as above_____ 24

22b. Tanoak absent or not as above__ 2

**Douglas-fir-Black Oak Sub-series**

24a. Black oak
present and ≥ 5% cover_____ PSME-QUKE

24b. Black oak
absent or not as above_____ 25

**Douglas-fir-Ponderosa Pine Sub-series**

25a. Ponderosa pine
present and ≥ 5% cover_____ PSME-PIPO

25b. Ponderosa pine absent or not as above_____ 26

**Douglas-fir-High Productivity Sub-series**

26a. Hazelnut present_____ PSME/COCOC

26b. Hazelnut absent_____ Go back and try again

## KNOBCONE PINE SERIES

## WESTERN WHITE PINE SERIES

1a. Dwarf tanbark and huckleberry oak present_ PIMO3/LIDEE-QUVA

1b. Not as above_____ Not yet described

# GRASSLAND SERIES

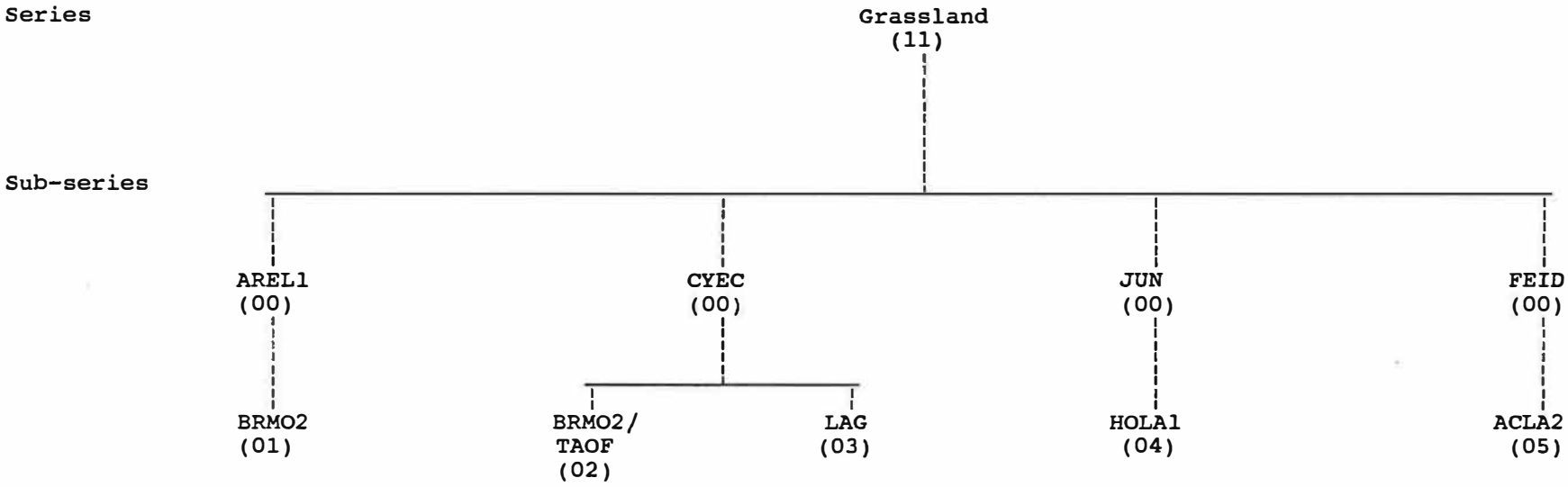


Figure 1. Dendrogram of plant associations within the grassland series.

Table 1. Confirmed locations of the grassland series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| LOCATION | AREL1-BRMO2 | CYEC-BRMO2/TAOF | CYEC/LAG | JUN-HOLA1 | FEID/ACLA2 |
| **SIX RIVERS NF** | | | | | |
| GASQUET RD | | | | | |
| ORLEANS RD | | | | | |
| LOWER TRINITY RD | X | X | X | X | X |
| MAD RIVER RD | | | X | | |
| **KLAMATH NF** | | | | | |
| UKONOM RD | | | | | |
| HAPPY CAMP RD | | | | | |
| OAK KNOLL RD | | | | | |
| SALMON RIVER RD | | | | | |
| SCOTT RIVER RD | | | | | |

Table 2. Comparison of environment and soil variables by plant association in the grassland series.

| | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| VARIABLE | AREL1-BRMO2 | CYEC-BRMO2 | CYEC/LAG | JUN-HOLA1 | FEID/ACLA2 |
| NUMBER OF PLOTS | 15 | 10 | 14 | 3 | 6 |
| **ENVIRONMENT:** ELEVATION (ft) | 3065 | 3086 | 3790 | 2773 | 4885 |
| ASPECT (deg) | S. WEST | SOUTH S. WEST | SOUTH S. WEST | S. EAST | NORTH S. EAST |
| SLOPE (%) | 17 | 25 | 30 | 1 | 18 |
| RADIATION INDEX | .494 | .523 | .478 | .508 | .462 |
| SURFACE ROCK(%) | 1 | 3 | 30 | 1 | 5 |
| **SOILS:** SOIL DEPTH (in) | 38 | 37 | 24 | 36 | 40 |
| AWC (in) | 5.3 | 4.7 | 2.6 | 7.7 | 4.9 |
| A HORIZON | | | | | |
| THICKNESS (in) | 14 | 10 | 8 | 13 | 7 |
| CO. FRAG. (%) | 20 | 20 | 29 | 20 | 25 |
| COLOR | very dark grayish brown, very dark gray, dark brown, black | very dark grayish brown, dark brown | very dark grayish brown, dark brown | very dark gray | very dark grayish brown, dark brown |
| TEXTURE | gl, l, sil | gl, l | gl, gsil | l, sil | gl |
| PARENT MATERIAL | sandstone | sandstone semischist | sandstone semischist | sandstone | sandstone |
| SOIL FAMILY | | | | | |

Table 3. Comparison of vegetation variables by plant association in the grassland series.

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | AREL1-BRMO2 | CYEC-BRMO2/TAOF | CYEC/LAG | JUN-HOLA2 | FEID/ACLA2 |
| **VEGETATION LAYER (% COVER)** | | | | | |
| TOTAL COVER | 98 | 90 | 93 | 99 | 79 |
| GRASS COVER | 85 | 63 | 74 | 86 | 58 |
| FORB COVER | 28 | 39 | 29 | 44 | 20 |
| SHRUB COVER | 1 | 1 | 1 | 0 | 1 |
| TREE COVER | 0 | 0 | 0 | 0 | 1 |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | |
| POISON OAK | 5 (20) | 2 (30) | | | |
| GOOSEBERRY | | | 1 (7) | | |
| BLACK CAP | | | 1 (7) | | |
| SPREADING SNOWBERRY | | | 2 (14) | | |

Table 3. Comparison of vegetation variables by plant association in the grassland series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | AREL1-BRMO2 | CYEC-BRMO2/TAOF | CYEC/LAG | JUN-HOLA1 | FEID/ACLA2 |
| **HERBS (% COVER) (CONSTANCY)** | | | | | |
| COMMON YARROW | 3 (86) | 3 (40) | 5 (71) | 2 (100) | 4 (100) |
| SHEEP SORREL | 2 (86) | 7 (60) | 2 (57) | 1 (100) | 4 (83) |
| COMMON DANDELION | 1 (53) | 4 (100) | 1 (14) | 1 (66) | 1 (50) |
| NARROW-LEAVED FLAX | 2 (80) | 2 (70) | | 1 (100) | |
| SMALL-FLOWERED HOSACKIA | 10 (80) | 14 (100) | 2 (7) | 10 (33) | 4 (16) |
| COMMON SOAP PLANT | 1 (66) | 1 (30) | 1 (50) | 1 (33) | 1 (33) |
| ENGLISH PLANTAIN | 2 (73) | 3 (60) | | 3 (66) | |
| WILD HYACINTH | 1 (86) | 1 (50) | 1 (7) | | |
| WESTERN BUTTERCUP | 1 (46) | 1 (30) | | 2 (100) | 4 (33) |
| AMERICAN VETCH | 2 (73) | 1 (10) | | 2 (33) | 1 (33) |
| LOMATIUM | 1 (40) | 1 (50) | 1 (28) | | 1 (16) |
| WOODLAND TARWEED | 1 (6) | 2 (60) | 10 (7) | 1 (33) | 7 (66) |
| WESTERN WILD CUCUMBER | 2 (53) | 2 (30) | 5 (14) | | 3 (16) |
| HARELEAF | | | 7 (85) | | |
| RED-STEMMED FILAREE | 1 (6) | 7 (70) | 1 (7) | 2 (66) | |
| BUR-CLOVER | 1 (26) | 25 (10) | | 23 (100) | |
| ANNUAL LUPINE | 2 (40) | 1 (20) | | 1 (33) | |
| BRACKENFERN | 6 (46) | | 8 (14) | 1 (33) | |
| BRODIAEA | | | 2 (50) | | 1 (33) |
| CUT-LEAVED GERANIUM | 1 (20) | | | 2 (66) | |

| | | | | | |
|---|---|---|---|---|---|
| PURPLE CLARKIA | | | 2 (42) | | |
| MOUSE-EARED CHICKWEED | 1 (33) | 1 (10) | | 1 (33) | |
| PACIFIC HOUND'S-TONGUE | 2 (26) | | | 2 (33) | 1 (16) |
| PURPLE CUDWEED | 1 (6) | 3 (50) | 1 (7) | | |
| SOUR CLOVER | 5 (13) | 1 (20) | | 2 (66) | |
| McCRAE'S CLOVER | 2 (13) | 3 (50) | | | |
| VETCH | 1 (13) | 1 (10) | | | 1 (50) |
| FIELD BINDWEED | 1 (20) | 1 (10) | 1 (7) | | |
| CALIFORNIA STICKSEED | | | 1 (42) | | |
| BUTTERCUP | 1 (13) | | | | 1 (66) |
| DANDELION | | | 1 (42) | | |
| WYETHIA | | | 2 (28) | | 1 933) |
| FAREWELL-TO-SPRING | | | 4 (35) | | |
| LOTUS | | | 8 (35) | | |
| FIELD MADDER | 1 (6) | 3 (10) | | 1 (33) | |
| CHECKERBLOOM | 2 (33) | | | | |
| RANCHER'S FIREWEED | 1 (6) | 1 (30) | | | |
| COAST GOLDFIELDS | | 9 (20) | | | |
| TOLMIE'S STAR TULIP | 1 (26) | | | | |
| CLARKIA | | | 3 (28) | | |
| FRAGRANT BEDSTRAW | 1 (6) | 1 (10) | | 2 (33) | |
| COMMON MEADOW-FOAM | 1 (20) | | | 25 (33) | |
| CLOVER | | 1 (20) | | 8 (33) | |

Table 3. Comparison of vegetation variables by plant association in the grassland series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | AREL1-BRMO2 | CYEC-BRMO2/TAOF | CYEC/LAG | JUN-HOLA1 | FEID/ACLA2 |
| **GRASSES (% COVER) (CONSTANCY)** | | | | | |
| DOGTAIL GRASS | 24 (100) | 31 (100) | 50 (100) | 3 (66) | |
| SOFT CHESS | 22 (86) | 11 (90) | 2 (57) | 7 (66) | |
| SILVERY HAIR-GRASS | 4 (93) | 6 (70) | 9 (21) | 4 (66) | 2 (16) |
| TALL OAT-GRASS | 45 (100) | 6 (80) | | 6 (66) | |
| KENTUCKY BLUEGRASS | 2 (40) | 1 (10) | 1 (7) | 14 (100) | 3 (33) |
| WILD OAT | 7 (46) | 13 (60) | | 2 (33) | |
| BLUE WILD RYE | | 1 (20) | 4 (64) | 1 (33) | 3 (66) |
| RIPGUT-GRASS | 1 (6) | 13 (50) | 5 (42) | | |
| DOWNY BROME | | 8 (20) | 9 (50) | | |
| COMMON WOOD-RUSH | 1 (66) | | | | |
| LEMMON'S STIPA | 1 (6) | 1 (10) | 10 (64) | | |
| RUSH | 1 (26) | | | 23 (99) | |
| SLENDER WILD OAT | | | 11 (57) | | |
| CALIFORNIA BROME | 2 (40) | | | 3 (33) | |
| ORCHARD-GRASS | 1 (20) | | | 16 (66) | |
| BARLEY | 2 (6) | | | 13 (66) | |
| IDAHO FESCUE | | | 2 (14) | | 51 (100) |
| ENGLISH RYE-GRASS | | 2 (10) | | 3 (66) | |
| BROME | | | 1 (28) | | |
| CALIFORNIA WILD OAT-GRASS | 15 (6) | 6 (20) | | | 10 (33) |

| | | | | | |
|---|---|---|---|---|---|
| WESTERN FESCUE | | 2 (10) | 1 (21) | | 1 (16) |
| VELVET GRASS | | | | 12 (100) | |
| ELEGANT HAIR-GRASS | | | 10 (21) | | |
| SMALL QUAKING-GRASS | | | | 6 (66) | |
| SEDGE | | | 1 (14) | | |
| SLENDER HAIR-GRASS | | | 2 (14) | | |
| CALIFORNIA FESCUE | 2 (13) | | 1 (7) | | |
| BOTTLE-BRUSH SQUIRREL-TAIL | | | 2 (21) | | |
| RUSH | | | | | |
| HAIR-GRASS | | | 10 (7) | | |
| BROME | | | 1 (7) | | |
| LESSER PANICLED SEDGE | | | | 5 (33) | |
| DUDLEY'S SEDGE | | | | 2 (33) | |
| THICK-HEADED SEDGE | | | | 8 (33) | |
| BIFID SEDGE | | | | 2 (33) | |
| SIX-WEEKS FESCUE | | | | 2 (33) | |
| FESCUE | | | 1 (7) | | |
| SPIKE-RUSH | | | | 30 (33) | |
| SPREADING RUSH | | | | 20 (33) | |
| TIMOTHY | | | | | 1 (16) |
| BLUEGRASS | | | | 2 (33) | |

110001

Table 1. Environment summary for the tall oat-grass-soft chess type (AREL1-BRMO2) N=15.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3065 | 2680 | 3680 | 80 |
| SLOPE (%) | 17 | 5 | 30 | 3 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .494 | .448 | .538 | .007 |
| SURFACE ROCK | 1 | 0 | 3 | 1 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 2. Soils summary for the tall oat-grass-soft chess type (AREL1-BRMO2) N=15

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 26 | >40 |
| AWC (inches) | 5.3 | 2.5 | 6.9 |
| PARENT ROCK | sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 14 | 5 | 24 |
| COARSE FRAGMENT (%) | 20 | 7 | 30 |
| pH | 6.1 | 5.7 | 7.0 |
| COLOR | very dark grayish brown, very dark gray, dark brown, black | | |
| TEXTURE | gl, l, sil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 21 | 10 | 35 |
| pH | 6.5 | 6.0 | 7.0 |
| COLOR | very dark grayish brown, very dark gray, dark brown, dark yellowish brown | | |
| TEXTURE | gcl, cl, sicl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 3. Vegetation summary for the tall oat-grass-soft chess (AREL1-BRMO2) N=15.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 94 | 100 | 1 |
| GRASS COVER | 85 | 70 | 95 | 5 |
| HERB COVER | 28 | 8 | 45 | 6 |
| SHRUB COVER | 1 | 0 | 1 | 1 |
| TREE COVER | 0 | 0 | 0 | 0 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **SHRUBS** | | |
| POISON OAK (RHDI) | 5 | 20 |
| **HERBS** | | |
| COMMON YARROW (ACLA2) | 3 | 86 |
| SHEEP SORREL (RUAC) | 2 | 86 |
| COMMON DANDELION (TAOF) | 1 | 53 |
| NARROW-LEAVED FLAX (LIAN3) | 2 | 80 |
| SMALL-FLOWERED HOSACKIA (LOMI) | 10 | 80 |
| COMMON SOAP PLANT (CHPO1) | 1 | 66 |
| ENGLISH PLANTAIN (PLLA) | 2 | 73 |
| WILD HYACINTH (BRPU) | 1 | 86 |
| WESTERN BUTTERCUP (RAOCE) | 1 | 46 |
| AMERICAN VETCH (VIAMO) | 2 | 73 |
| LOMATIUM (LOM1) | 1 | 40 |
| WESTERN WILD CUCUMBER (MAOR1) | 2 | 53 |
| BUR-CLOVER (MEHI) | 1 | 26 |
| ANNUAL LUPINE (LUBI) | 2 | 40 |
| BRACKENFERN (PTAQL) | 6 | 46 |
| CUT-LEAVED GERANIUM (GEDI) | 1 | 20 |
| MOUSE-EARED CHICKWEED (CEVI) | 1 | 33 |
| PACIFIC HOUND'S-TONGUE (CYGR) | 2 | 26 |
| FIELD BINDWEED (COAR2) | 1 | 20 |
| CHECKERBLOOM (SIMA1) | 2 | 33 |
| TOLMIE'S STAR TULIP (CATO) | 1 | 26 |
| COMMON MEADOW-FOAM (LIDO) | 1 | 20 |
| LITHOPHRAGMA (LITH) | 1 | 20 |
| **GRASSES** | | |
| DOGTAIL GRASS (CYEC) | 24 | 100 |
| SOFT CHESS (BRMO2) | 22 | 86 |
| SILVERY HAIR-GRASS (AICA) | 4 | 93 |
| TALL OAT-GRASS (AREL1) | 45 | 100 |
| KENTUCKY BLUEGRASS (POPR1) | 2 | 40 |
| WILD OAT (AVFA) | 7 | 46 |
| COMMON WOOD-RUSH (LUCO1) | 1 | 66 |
| RUSH (JUN3) | 1 | 26 |
| CALIFORNIA BROME (BRCA1) | 2 | 40 |
| ORCHARD-GRASS (DAGL1) | 1 | 20 |

110002

Table 4. Environment summary for the dogtail grass-soft chess/common dandelion type (CYEC-BRMO2/TAOF) N=10.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3086 | 2100 | 3980 | 213 |
| SLOPE (%) | 25 | 15 | 35 | 2 |
| ASPECT | SOUTH S. WEST | | | |
| SOLAR RADIATION INDEX * | .523 | .478 | .548 | .006 |
| SURFACE ROCK | 3 | 1 | 6 | 1 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 5. Soils summary for the dogtail grass-soft chess/common dandelion type (CYEC-BRMO2/TAOF) N=10.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Thermic | | |
| DEPTH ** (inches) | 37 | 27 | 41 |
| AWC (inches) | 4.7 | 3.3 | 6.0 |
| PARENT ROCK | sandstone semischist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 4 | 17 |
| COARSE FRAGMENT (%) | 20 | 7 | 36 |
| pH | 5.9 | 5.5 | 6.2 |
| COLOR | very dark grayish brown, dark brown | | |
| TEXTURE | gl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 36 | 18 | 50 |
| pH | 6.5 | 5.7 | 7.0 |
| COLOR | very dark grayish brown, dark brown | | |
| TEXTURE | gcl, gscl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 6. Vegetation summary for the dogtail grass-soft chess/common dandelion type (CYEC-BRMO2/TAOF) N=10.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 75 | 99 | 2 |
| GRASS COVER | 63 | 40 | 80 | 5 |
| HERB COVER | 39 | 20 | 60 | 5 |
| SHRUB COVER | 1 | 0 | 3 | 1 |
| TREE COVER | 0 | 0 | 0 | 0 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 30 |
| **HERBS** | | |
| COMMON YARROW (ACLA2) | 3 | 40 |
| SHEEP SORREL (RUAC) | 7 | 60 |
| COMMON DANDELION (TAOF) | 4 | 100 |
| NARROW-LEAVED FLAX (LIAN3) | 2 | 70 |
| SMALL-FLOWERED HOSACKIA (LOMI) | 14 | 100 |
| COMMON SOAP PLANT (CHPO1) | 1 | 30 |
| ENGLISH PLANTAIN (PLLA) | 3 | 60 |
| WILD HYACINTH (BRPU) | 1 | 50 |
| WESTERN BUTTERCUP (RAOCE) | 1 | 30 |
| LOMATIUM (LOM1) | 1 | 50 |
| WOODLAND TARWEED (MAMA1) | 2 | 60 |
| WESTERN WILD CUCUMBER (MAOR1) | 2 | 30 |
| RED-STEMMED FILAREE (ERCI2) | 7 | 70 |
| ANNUAL LUPINE (LUBI) | 1 | 20 |
| PURPLE CLARKIA (CLPU) | 1 | 20 |
| PURPLE CUDWEED (GNPU) | 3 | 50 |
| SOUR CLOVER (TRFU) | 1 | 20 |
| McCRAE'S CLOVER (TRMA1) | 3 | 50 |
| RANCHER'S FIREWEED (AMIN) | 1 | 30 |
| COAST GOLDFIELDS (BACH) | 9 | 20 |
| CLOVER (TRI11) | 1 | 20 |
| NAPA THISTLE (CEME1) | 1 | 20 |
| OWL-CLOVER (ORT) | 1 | 30 |
| CAMPION (SIL3) | 2 | 20 |
| **GRASSES** | | |
| DOGTAIL GRASS (CYEC) | 31 | 100 |
| SOFT CHESS (BRMO2) | 11 | 90 |
| SILVERY HAIR-GRASS (AICA) | 6 | 70 |
| TALL OAT-GRASS (AREL1) | 6 | 80 |
| WILD OAT (AVFA) | 13 | 60 |
| BLUE WILD RYE (ELGL) | 1 | 20 |
| RIP-GUT GRASS (BRRI2) | 13 | 50 |
| DOWNY BROME (BRTE) | 8 | 20 |
| CALIFORNIA WILD OAT-GRASS (DACA1) | 6 | 20 |

110003

Table 7. Environment summary for the dogtail grass/hareleaf type (CYEC/LAG) N=14.

| RANGER DISTRICT | MAD RIVER, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3790 | 3400 | 4360 | 73 |
| SLOPE (%) | 30 | 25 | 45 | 1 |
| ASPECT | SOUTH S. WEST | | | |
| SOLAR RADIATION INDEX * | .478 | .343 | .576 | .049 |
| SURFACE ROCK | 30 | 2 | 63 | 11 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 8. Soils summary for the dogtail grass/hareleaf type (CYEC/LAG) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Thermic | | |
| DEPTH ** (inches) | 24 | 21 | 31 |
| AWC (inches) | 2.6 | 1.5 | 3.4 |
| PARENT ROCK | sandstone semischist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 3 | 13 |
| COARSE FRAGMENT (%) | 29 | 7 | 40 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | very dark grayish brown, dark brown | | |
| TEXTURE | gl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 64 | 35 | 90 |
| pH | 5.9 | 5.4 | 6.5 |
| COLOR | dark grayish brown, dark brown, dark yellowish brown | | |
| TEXTURE | ksil, xstl, sicl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 9. Vegetation summary for the dogtail grass/hareleaf type (CYEC/LAG) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 85 | 99 | 2 |
| GRASS COVER | 74 | 60 | 90 | 4 |
| HERB COVER | 29 | 10 | 45 | 4 |
| SHRUB COVER | 1 | 0 | 2 | 1 |
| TREE COVER | 0 | 0 | 0 | 0 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS** | | |
| COMMON YARROW (ACLA2) | 5 | 71 |
| SHEEP SORREL (RUAC) | 2 | 57 |
| COMMON SOAP PLANT (CHPO1) | 1 | 50 |
| LOMATIUM (LOM1) | 1 | 28 |
| HARELEAF (LAG) | 7 | 85 |
| BRODIAEA (BRO4) | 2 | 50 |
| PURPLE CLARKIA (CLPU) | 2 | 42 |
| CARROT (UMBEL) | 1 | 35 |
| CALIFORNIA STICKSEED (HACA1) | 1 | 42 |
| DANDELION (TAR) | 1 | 42 |
| WYETHIA (WYE) | 2 | 28 |
| FAREWELL-TO-SPRING (CLAM) | 4 | 35 |
| LOTUS (LOT1) | 8 | 35 |
| CLARKIA (CLA2) | 3 | 28 |
| MOUNTAIN COLLOMIA (COGR3) | 1 | 21 |
| FERN-LEAVED LOMATIUM (LODI) | 1 | 21 |
| LUPINE (LUP) | 9 | 21 |
| **GRASSES** | | |
| DOGTAIL GRASS (CYEC) | 50 | 100 |
| SOFT CHESS (BRMO2) | 2 | 57 |
| SILVERY HAIR-GRASS (AICA) | 9 | 21 |
| BLUE WILD RYE (ELGL) | 4 | 64 |
| RIP-GUT GRASS (BRRI2) | 5 | 42 |
| DOWNY BROME (BRTE) | 9 | 50 |
| LEMMON'S STIPA (STLE1) | 10 | 64 |
| SLENDER WILD OAT (AVBA) | 11 | 57 |
| BROME (BRO2) | 1 | 28 |
| WESTERN FESCUE (FEOC1) | 1 | 21 |
| ELEGANT HAIR-GRASS (AIEL) | 10 | 21 |
| BOTTLE-BRUSH SQUIRREL-TAIL (SIHY) | 2 | 21 |

110004

Table 10. Environment summary for the rush-velvet grass type (JUNHOLA1) N=3.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2773 | 2640 | 3040 | 133 |
| SLOPE (%) | 1 | 0 | 2 | 1 |
| ASPECT | S. EAST | | | |
| SOLAR RADIATION INDEX * | .508 | .483 | .558 | .025 |
| SURFACE ROCK | 1 | 0 | 2 | 1 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 11. Soils summary for the rush-velvet grass type (JUN-HOLA1) N=3.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 36 | 27 | >40 |
| AWC (inches) | 7.7 | 3.2 | 9.9 |
| PARENT ROCK | sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 13 | 5 | 25 |
| COARSE FRAGMENT (%) | 20 | 10 | 40 |
| pH | 6.8 | 6.7 | 7.0 |
| COLOR | very dark gray | | |
| TEXTURE | l, sil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 28 | 15 | 40 |
| pH | 7.5 | 7.0 | 8.0 |
| COLOR | very dark gray | | |
| TEXTURE | gl, vkcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 12. Vegetation summary for the rush-velvet grass type (JUN-HOLA1) N=3.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 99 | 99 | 100 | 1 |
| GRASS COVER | 86 | 80 | 90 | 3 |
| HERB COVER | 44 | 12 | 80 | 20 |
| SHRUB COVER | 0 | 0 | 0 | 0 |
| TREE COVER | 0 | 0 | 0 | 0 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS** | | |
| COMMON YARROW (ACLA2) | 2 | 100 |
| SHEEP SORREL (RUAC) | 1 | 100 |
| COMMON DANDELION (TAOF) | 1 | 66 |
| NARROW-LEAVED FLAX (LIAN3) | 1 | 100 |
| SMALL-FLOWERED HOSACKIA (LOMI) | 10 | 33 |
| COMMON SOAP PLANT (CHPO1) | 1 | 33 |
| ENGLISH PLANTAIN (PLLA) | 3 | 66 |
| WESTERN BUTTERCUP (RAOCE) | 2 | 100 |
| AMERICAN VETCH (VIAMO) | 2 | 33 |
| WOODLAND TARWEED (MAMA1) | 1 | 33 |
| RED-STEMMED FILAREE (ERCI2) | 2 | 66 |
| BUR-CLOVER (MEHI) | 23 | 100 |
| ANNUAL LUPINE (LUBI) | 1 | 33 |
| BRACKENFERN (PTAQL) | 1 | 33 |
| CUT-LEAVED GERANIUM (GEDI) | 2 | 66 |
| MOUSE-EARED CHICKWEED (CEVI) | 1 | 33 |
| PACIFIC HOUND'S-TONGUE (CYGR) | 2 | 33 |
| SOUR CLOVER (TRFU) | 2 | 66 |
| FIELD MADDER (SHAR1) | 1 | 33 |
| FRAGRANT BEDSTRAW (GATR2) | 2 | 33 |
| COMMON MEADOW-FOAM (LIDO) | 25 | 33 |
| CLOVER (TRI11) | 8 | 33 |
| SMALL-FLOWERED WILLOW-HERB (EPMI) | 1 | 33 |
| JAPANESE HEDGE PARSLEY (TOJA) | 2 | 33 |
| BULL THISTLE (CIVU) | 5 | 33 |
| LARGE MONKEY-FLOWER (MIGU) | 1 | 33 |
| SMALLER COMMON VETCH (VIAN) | 2 | 33 |
| SPRING VETCH (VISA) | 1 | 33 |
| SCARLET PIMPERNEL (ANAR2) | 2 | 33 |
| GIANT HORSETAIL (EQTEB) | 1 | 33 |
| PHLOX (PHL2) | 1 | 33 |
| COMMON SOW-THISTLE (SOOL) | 1 | 33 |
| HEDGE-NETTLE (STRI) | 1 | 33 |

| | | |
|---|---|---|
| **GRASSES** | | |
| DOGTAIL GRASS (CYEC) | 3 | 66 |
| SOFT CHESS (BRMO2) | 7 | 66 |
| SILVERY HAIR-GRASS (AICA) | 4 | 66 |
| TALL OAT-GRASS (AREL1) | 6 | 66 |
| KENTUCKY BLUEGRASS (POPR1) | 14 | 100 |
| WILD OAT (AVFA) | 2 | 33 |
| BLUE WILD RYE (ELGL) | 1 | 33 |
| RUSH (JUN) | 23 | 99 |
| CALIFORNIA BROME (BRCA1) | 3 | 33 |
| ORCHARD-GRASS (DAGL1) | 16 | 66 |
| BARLEY (HOHY) | 13 | 66 |
| ENGLISH RYE-GRASS (LOPE1) | 3 | 66 |
| VELVET GRASS (HOLA1) | 12 | 100 |
| SMALL QUAKING-GRASS (BRMI1) | 6 | 66 |
| LESSER PANICLED SEDGE (CADI1) | 5 | 33 |
| DUDLEY'S SEDGE (CADU1) | 2 | 33 |
| THICK-HEADED SEDGE (CAPA1) | 8 | 33 |
| BIFID SEDGE (CASE2) | 2 | 33 |
| SIX-WEEKS FESCUE (FEDE) | 2 | 33 |
| SPIKE-RUSH (HEPA2) | 30 | 33 |
| SPREADING RUSH (JUPA2) | 20 | 33 |
| BLUEGRASS (POA3) | 2 | 33 |

110005

Table 13. Environment summary for the Idaho fescue/common yarrow type (FEID/ACLA2) N=6.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4885 | 4710 | 5130 | 65 |
| SLOPE (%) | 18 | 12 | 30 | 3 |
| ASPECT | NORTH S. EAST | | | |
| SOLAR RADIATION INDEX * | .462 | .413 | .525 | .027 |
| SURFACE ROCK | 5 | 2 | 10 | 4 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 14. Soils summary for the Idaho fescue/common yarrow type (FEID/ACLA2) N=6.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 40 | 35 | >40 |
| AWC (inches) | 4.9 | 3.9 | 5.3 |
| PARENT ROCK | sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 15 |
| COARSE FRAGMENT (%) | 25 | 17 | 30 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | very dark grayish brown, dark brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 26 | 18 | 34 |
| pH | 6.1 | 5.9 | 6.4 |
| COLOR | dark grayish brown, dark brown | | |
| TEXTURE | gcl, gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 15. Vegetation summary for the Idaho fescue/common yarrow type (FEID/ACLA2) N=6.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 79 | 70 | 90 | 3 |
| GRASS COVER | 58 | 40 | 75 | 5 |
| HERB COVER | 20 | 8 | 35 | 4 |
| SHRUB COVER | 1 | 0 | 1 | 1 |
| TREE COVER | 1 | 0 | 3 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS** | | |
| COMMON YARROW (ACLA2) | 4 | 100 |
| SHEEP SORREL (RUAC) | 4 | 83 |
| COMMON DANDELION (TAOF) | 1 | 50 |
| COMMON SOAP PLANT (CHPO1) | 1 | 33 |
| WESTERN BUTTERCUP (RAOCE) | 4 | 33 |
| AMERICAN VETCH (VIAMO) | 1 | 33 |
| WOODLAND TARWEED (MAMA1) | 7 | 66 |
| BRODIAEA (BRO4) | 1 | 33 |
| VETCH (VIC3) | 1 | 50 |
| BUTTERCUP (RAN3) | 1 | 66 |
| WYETHIA (WYE) | 1 | 33 |
| WHITE BRODIAEA (BRHY) | 1 | 33 |
| SLENDER ANNUAL FIREWEED (EPMI) | 1 | 33 |
| LUPINE (LUP) | 2 | 33 |
| COMMON WOOLY SUNFLOWER (ERLA6) | 2 | 33 |
| **GRASSES** | | |
| KENTUCKY BLUEGRASS (POPR1) | 3 | 33 |
| BLUE WILD RYE (ELGL) | 3 | 66 |
| IDAHO FESCUE (FEID) | 51 | 100 |
| CALIFORNIA WILD OAT-GRASS (DACA1) | 10 | 33 |

Appendix A. List of plant species identified in the grassland series with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Abies concolor | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Libocedrus decurrens | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Lithocarpus densiflora | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Abies concolor | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Quercus garryana breweri | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Rhus diversiloba | 16% | 9 | 1 | 20 | 19 | 4.9 | 6.4 | 2.1 | 4.9 |
| Ribes sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus leucodermis | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Symphoricarpos acutus | 3% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Rubus sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Salix sp. | 1% | 1 | 90 | 90 | 0 | 90.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Achillea lanulosa | 73% | 39 | 1 | 10 | 9 | 3.3 | 2.6 | .4 | .8 |
| Rumex acetosella | 71% | 38 | 1 | 25 | 24 | 3.0 | 4.1 | .7 | 1.3 |
| Taraxacum officinale | 52% | 28 | 1 | 12 | 11 | 2.0 | 2.5 | .5 | 1.0 |
| Linum angustifolium | 49% | 26 | 1 | 5 | 4 | 1.6 | 1.1 | .2 | .4 |
| Lotus micranthus | 49% | 26 | 1 | 50 | 49 | 10.5 | 13.2 | 2.6 | 5.3 |
| Chlorogalum pomeridianum | 47% | 25 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Plantago lanceolata | 41% | 22 | 1 | 10 | 9 | 2.5 | 2.4 | .5 | 1.1 |
| Brodiaea pulchella | 35% | 19 | 1 | 2 | 1 | 1.1 | .2 | .1 | .1 |
| Ranunculus occidentalis | 33% | 18 | 1 | 5 | 4 | 1.6 | 1.1 | .3 | .6 |
| Vicia americana oregana | 32% | 17 | 1 | 2 | 1 | 1.5 | .5 | .1 | .3 |
| Lomatium sp. | 30% | 16 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Madia madioides | 30% | 16 | 1 | 10 | 9 | 3.4 | 3.5 | .9 | 1.9 |
| Marah oreganus | 26% | 14 | 1 | 10 | 9 | 2.4 | 2.5 | .7 | 1.4 |
| Lagophylla sp. | 22% | 12 | 1 | 25 | 24 | 7.4 | 7.7 | 2.2 | 4.9 |
| Erodium cicutarium | 20% | 11 | 1 | 30 | 29 | 4.7 | 8.6 | 2.6 | 5.8 |
| Medicago hispida | 18% | 10 | 1 | 60 | 59 | 12.9 | 18.6 | 5.9 | 13.3 |
| Lupinus bicolor | 18% | 10 | 1 | 3 | 2 | 1.3 | .7 | .2 | .5 |
| Pteridium aquilinum lanugin | 18% | 10 | 1 | 15 | 14 | 5.7 | 5.5 | 1.8 | 4.0 |
| Brodiaea sp. | 16% | 9 | 1 | 5 | 4 | 1.6 | 1.3 | .4 | 1.0 |
| Geranium dissectum | 16% | 9 | 1 | 5 | 4 | 2.1 | 1.4 | .5 | 1.0 |
| Clarkia purpurea | 15% | 8 | 1 | 5 | 4 | 1.8 | 1.4 | .5 | 1.2 |
| Vicia sp. | 15% | 8 | 1 | 2 | 1 | 1.3 | .5 | .2 | .5 |
| Cerastium viscosum | 13% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynoglossum grande | 13% | 7 | 1 | 2 | 1 | 1.4 | .5 | .2 | .5 |
| Gnaphalium purpureum | 13% | 7 | 1 | 8 | 7 | 2.3 | 2.6 | 1.0 | 2.4 |
| Ranunculus sp. | 13% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium fucatum | 13% | 7 | 1 | 10 | 9 | 2.6 | 3.4 | 1.3 | 3.1 |
| Trifolium macraei | 13% | 7 | 1 | 5 | 4 | 2.6 | 1.5 | .6 | 1.4 |
| Convolvulus arvensis | 11% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hackelia californica | 11% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus sp. | 11% | 6 | 1 | 20 | 19 | 8.7 | 10.0 | 5.8 | 24.9 |
| Taraxacum sp. | 11% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Wyethia sp. | 11% | 6 | 1 | 5 | 4 | 1.7 | 1.6 | .7 | 1.7 |
| Clarkia amoena | 9% | 5 | 1 | 5 | 4 | 3.8 | 1.8 | .8 | 2.2 |
| Lotus sp. | 9% | 5 | 1 | 20 | 19 | 7.8 | 7.6 | 3.4 | 9.4 |
| Sherardia arvensis | 9% | 5 | 1 | 5 | 4 | 2.2 | 1.8 | .8 | 2.2 |
| Sidalcea malvaeflora | 9% | 5 | 1 | 5 | 4 | 1.8 | 1.8 | .8 | 2.2 |
| Amsinckia intermedia | 7% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Baeria chrysostoma | 7% | 4 | 1 | 10 | 9 | 5.0 | 4.7 | 2.3 | 7.5 |
| Calochortus tolmiei | 7% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clarkia sp. | 7% | 4 | 1 | 5 | 4 | 3.0 | 2.3 | 1.2 | 3.7 |
| Galium triflorum | 7% | 4 | 1 | 3 | 2 | 1.8 | 1.0 | .5 | 1.5 |
| Limnanthes douglasii | 7% | 4 | 1 | 25 | 24 | 7.0 | 12.0 | 6.0 | 19.1 |
| Trifolium sp. | 7% | 4 | 1 | 10 | 9 | 5.0 | 4.7 | 2.3 | 7.5 |
| Brodiaea hyacinthina | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brodiaea ida-maia | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Brodiaea laxa | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Centaurea melitensis | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia grandiflora | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium minutum | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eschscholzia californica | 5% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Gilia capitata | 5% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Lithophragma sp. | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lomatium dissectum | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Orthocarpus sp. | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rumex crispus | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene sp. | 5% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Torilis japonica | 5% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Castilleja sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cirsium vulgare | 3% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Cryptantha sp. | 3% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Equisetum sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriophyllum lanatum | 3% | 2 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Eriogonum sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Euphorbia sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium aparine | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Linanthus sp. | 3% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Lotus sp. | 3% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Marah sp. | 3% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Mimulus guttatus | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon sp. | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium tridentatum | 3% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Vicia angustifolia | 3% | 2 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Vicia sativa | 3% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achillea millefolium lanulosa | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achlys triphylla | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Allium sp. | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Anagallis arvensis | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Arnica mollis | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brassica sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cirsium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clarkia purpurea purpurea | 1% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Collomia heterophylla | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Delphinium nudicaule | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Delphinium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Equisetum telmateia braunii | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erigeron philadelphicus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriogonum caninum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erythronium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium californicum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hemizonia luzulaefolia | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Hypericum perforatum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lagophylla ramosissima | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lepidium campestre | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus argophyllus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus sp. | 1% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Lupinus densiflorus | 1% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Madia sp. | 1% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Monardella odoratissima | 1% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Montia perfoliata | 1% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Nasturtium officinale | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polygonum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polystichum munitum | 1% | 1 | 4 | 4 | 0 | 4.0 | .0 | .0 | .0 |
| Sanicula crassicaulis | 1% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Sanicula tuberosa | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Schoenolirion album | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene gallica | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sonchus oleraceus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stachys rigida | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium bifidum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Trifolium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium chloropetalum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia americana | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia californica | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sheltonii | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Cynosurus echinatus | 86% | 46 | 1 | 80 | 79 | 31.3 | 23.5 | 3.5 | 7.0 |
| Bromus mollis | 69% | 37 | 1 | 60 | 59 | 15.1 | 16.4 | 2.7 | 5.4 |
| Aira caryophyllea | 58% | 31 | 1 | 15 | 14 | 4.4 | 4.5 | .8 | 1.6 |
| Arrhenatherum elatius | 50% | 27 | 1 | 70 | 69 | 27.3 | 24.1 | 4.6 | 9.5 |
| Poa pratensis | 32% | 17 | 1 | 35 | 34 | 3.9 | 8.1 | 2.0 | 4.2 |
| Avena fatua | 32% | 17 | 1 | 25 | 24 | 8.8 | 8.3 | 2.0 | 4.3 |
| Elymus glaucus | 30% | 16 | 1 | 15 | 14 | 2.9 | 3.6 | .9 | 1.9 |
| Bromus rigidus | 28% | 15 | 1 | 35 | 34 | 9.2 | 9.2 | 2.4 | 5.1 |
| Bromus tectorum | 22% | 12 | 1 | 25 | 24 | 7.2 | 8.4 | 2.4 | 5.3 |
| Juncus sp. | 20% | 11 | 1 | 30 | 29 | 6.7 | 10.7 | 3.6 | 8.2 |
| Luzula comosa | 20% | 11 | 1 | 4 | 3 | 1.3 | .9 | .3 | .6 |
| Stipa lemmónii | 20% | 11 | 1 | 50 | 49 | 8.0 | 15.0 | 4.5 | 10.1 |
| Avena barbata | 15% | 8 | 1 | 30 | 29 | 10.5 | 12.9 | 4.6 | 10.8 |
| Bromus carinatus | 15% | 8 | 1 | 35 | 34 | 5.9 | 11.8 | 4.2 | 9.9 |
| Dactylis glomerata | 15% | 8 | 1 | 30 | 29 | 5.3 | 10.0 | 3.5 | 8.4 |
| Hordeum hystrix | 15% | 8 | 1 | 85 | 84 | 16.1 | 29.0 | 10.3 | 24.3 |
| Festuca idahoensis | 11% | 6 | 25 | 65 | 40 | 50.8 | 16.9 | 6.9 | 17.7 |
| Lolium perenne | 11% | 6 | 1 | 4 | 3 | 1.7 | 1.2 | .5 | 1.3 |
| Bromus sp. | 9% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Danthonia californica | 9% | 5 | 4 | 15 | 11 | 9.2 | 5.5 | 2.5 | 6.9 |
| Festuca occidentalis | 9% | 5 | 1 | 2 | 1 | 1.4 | .5 | .2 | .7 |
| Holcus lanatus | 9% | 5 | 1 | 20 | 19 | 8.0 | 8.9 | 4.0 | 11.0 |
| Aira elegans | 5% | 3 | 1 | 25 | 24 | 10.3 | 12.9 | 7.4 | 31.9 |
| Briza minor | 5% | 3 | 1 | 10 | 9 | 4.3 | 4.9 | 2.8 | 12.3 |
| Carex sp. | 5% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Deschampsia elongata | 5% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Festuca californica | 5% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Sitanion hystrix | 5% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Aira sp. | 1% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Carex diandra | 1% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Carex dudleyi | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Carex pachystachya | 1% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Carex serratodens | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Festuca dertonensis | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Festuca sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heleocharis palustris | 1% | 1 | 30 | 30 | 0 | 30.0 | .0 | .0 | .0 |
| Juncus patens | 1% | 1 | 20 | 20 | 0 | 20.0 | .0 | .0 | .0 |
| Phleum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa sp. | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# OAK WOODLAND SERIES

**OAK WOODLANDS**

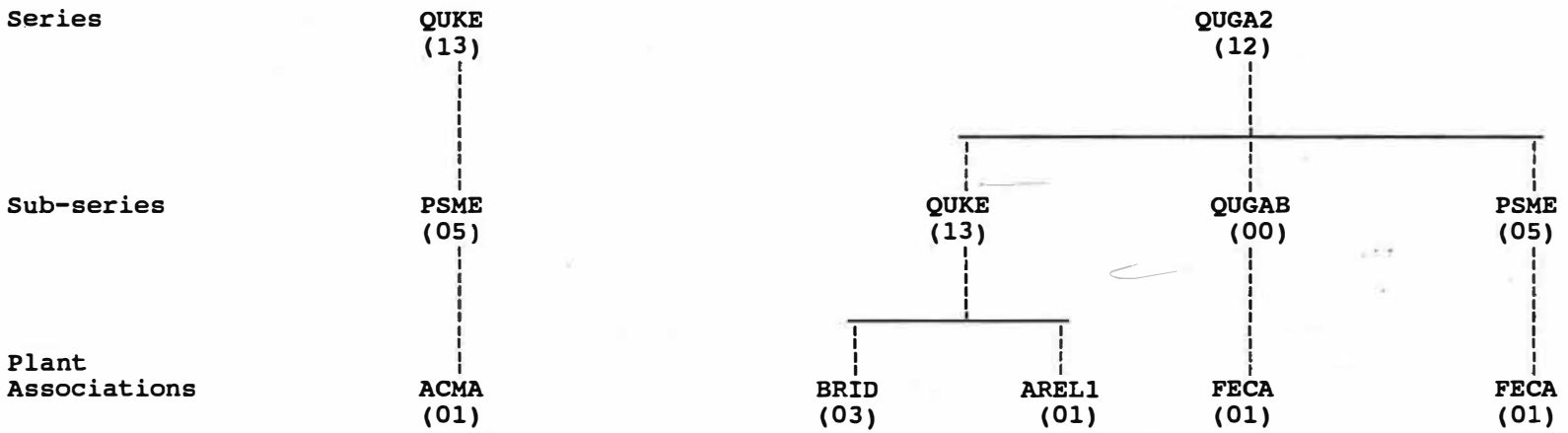


Figure 1. Dendrogram of plant associations within oak woodlands, white oak and black oak series.

Table 1. Confirmed locations of Oak woodland plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| LOCATION | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/AREL1 | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| **SIX RIVERS NF** | | | | | |
| GASQUET RD | | | | | |
| ORLEANS RD | | | | | |
| LOWER TRINITY RD | | X | X | X | X |
| MAD RIVER RD | X | X | | X | |
| **KLAMATH NF** | | | | | |
| UKONOM RD | | | | | |
| HAPPY CAMP RD | | | | | |
| OAK KNOLL RD | | | | | |
| SALMON RIVER RD | | | | | |
| SCOTT RIVER RD | | | | | |

Table 2. Comparison of environment and soil variables by plant association in oak woodlands.

| | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| VARIABLE | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/AREL1 | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| NUMBER OF PLOTS | 4 | 6 | 13 | 8 | 2 |
| **ENVIRONMENT:** ELEVATION (ft) | 3810 | 3885 | 3089 | 4825 | 2825 |
| ASPECT | S. WEST | S. EAST | S. EAST S. WEST | S. WEST | S. WEST |
| SLOPE (%) | 38 | 32 | 27 | 34 | 36 |
| RADIATION INDEX | .530 | .518 | .507 | .528 | .466 |
| SURFACE ROCK(%) | 54 | 15 | 1 | 16 | 1 |
| **SOILS:** SOIL DEPTH (in) | 37 | 38 | 39 | 32 | 29 |
| AWC | 3.1 | 5.2 | 5.2 | 3.2 | 3.2 |
| A HORIZON | | | | | |
| THICKNESS (in) | 5 | 6 | 11 | 8 | 8 |
| CO. FRAG. (%) | 10 | 13 | 20 | 28 | 15 |
| COLOR | black, very dark brown | dark brown, very dark brown | very dark grayish brown, very dark gray, very dark brown | very dark grayish brown, very dark brown | black, very dark brown |
| TEXTURE | sil, sil, l | l | gl, l | gl, l | gl |
| PARENT MATERIAL | sandstone | schist | sandstone | sandstone | sandstone |
| SOIL FAMILY | Abegg, Hecker | Mad | Doty, Hugo, Hullt, Skalan | Clallam | Skalan |

Table 3. Comparison of stand structure variables by plant association in oak woodlands.

| | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| VARIABLE | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/AREL1 | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| STAND AGE | 129 | 217 | 131 | 75 | 100 |
| SOFTWOOD | | | | | |
| VOLUME ($ft^3$) | 5065 | 925 | 17 | 2047 | 0 |
| BASAL AREA ($ft^2$) | 205 | 34 | 1 | 93 | 0 |
| HARDWOOD | | | | | |
| VOLUME ($ft^3$) | 1604 | 4365 | 2759 | 686 | 4805 |
| BASAL AREA ($ft^2$) | 76 | 219 | 95 | 48 | 267 |
| SITE CLASS | 1-3 | 4-5 | 4-5 | 3-5 | 5 |
| SITE INDEX | 125-175 | 75-100 | 75-100 | 75-125 | 75 |
| STAND DENSITY INDEX | 452 | 469 | 271 | 279 | 564 |

Table 4. Comparison of vegetation variables by plant association in oak woodlands.

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/AREL1 | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| **VEGETATION LAYER (% COVER)** | | | | | |
| TOTAL COVER | 96 | 96 | 99 | 93 | 93 |
| GRASS COVER | 12 | 76 | 62 | 33 | 50 |
| FORB COVER | 6 | 15 | 26 | 12 | 11 |
| SHRUB COVER | 2 | 2 | 1 | 2 | 1 |
| TREE COVER | 92 | 81 | 71 | 78 | 86 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | |
| OREGON WHITE OAK | 10 (25) | 40 (100) | 45 (84) | 38 (50) | 83 (100) |
| BLACK OAK | 36 (100) | 40 (100) | 33 (100) | | |
| DOUGLAS-FIR | 41 (100) | 9 (83) | 2 (7) | 10 (87) | 3 (100) |
| WHITE FIR | | | | 6 (75) | |
| BIGLEAF MAPLE | 6 (100) | | 2 (15) | | |
| PONDEROSA PINE | 32 (75) | 10 (16) | | 1 (12) | |
| INCENSE CEDAR | | 10 (16) | | 1 (37) | |

Table 4. Comparison of vegetation variables by plant association in oak woodlands (continued).

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/BRID | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | |
| BLACK OAK | 1 (75) | 6 (83) | 1 (61) | | |
| OREGON WHITE OAK | 1 (25) | 2 (33) | 1 (53) | | 1 (50) |
| DOUGLAS-FIR | 7 (100) | 3 (66) | | 2 (37) | |
| BREWER'S OAK | | 5 (16) | | 50 (100) | |
| CANYON LIVE OAK | 1 (100) | 1 (50) | | 1 (12) | |
| WHITE FIR | 1 (25) | | | 2 (50) | |
| BIGLEAF MAPLE | 1 (50) | 5 (16) | 1 (15) | | |
| INCENSE CEDAR | | | | 1 (37) | |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | |
| POISON OAK | 1 (50) | 1 (16) | 2 (46) | | 1 (50) |
| SNOWBERRY | | 2 (50) | 1 (7) | 1 (25) | 1 (50) |
| WILD ROSE | 1 (25) | 1 (16) | 1 (7) | 1 (12) | |
| SERVICEBERRY | | 1 (16) | | 3 (25) | |
| DWARF OREGON-GRAPE | 1 (25) | | | 1 (25) | |
| SPREADING SNOWBERRY | 1 (50) | 1 (16) | | | |

Table 4. Comparison of vegetation variables by plant association in oak woodlands (continued).

| VARIABLE | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|
| | QUKE-PSME-ACMA | QUGA2-QUKE/BRID | QUGA2-QUKE/AREL1 | QUGA2-QUGAB/FECA | QUGA2-PSME/FECA |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | |
| SWEET CICELY | 1 (100) | 1 (83) | 1 (76) | 1 (12) | 3 (50) |
| MOUNTAIN YARROW | 1 (50) | 4 (66) | 2 (46) | 1 (87) | |
| PACIFIC HOUND'S TONGUE | 1 (50) | 1 (33) | 2 (100) | | 2 (100) |
| SOAP PLANT | 1 (75) | 1 (50) | 1 (61) | 1 (50) | |
| FIRECRACKER FLOWER | 1 (25) | 1 (100) | 1 (7) | 1 (62) | 1 (100) |
| SMALL BEDSTRAW | | | 3 (84) | 2 (25) | 3 (100) |
| AMERICAN VETCH | | | 2 (76) | 1 (25) | 2 (50) |
| MINER'S LETTUCE | | | 3 (84) | 1 (12) | |
| WESTERN BUTTERCUP | | | 1 (84) | 1 (12) | |
| GAMBLEWEED | | | 1 (76) | | 2 (50) |
| JAPANESE HEDGE PARSLEY | | | 5 (84) | | |
| BEDSTRAW | 1 (25) | 5 (66) | | 1 (25) | |
| VETCH | | 5 (16) | 2 (15) | 2 (50) | |
| IRIS | 1 (50) | 1 (16) | 1 (38) | 2 (62) | |
| BRODIAEA | | 1 (66) | | 1 (12) | |
| WILD CUCUMBER | | | 2 (38) | 2 (12) | |
| CHECKERBLOOM | | | 1 (46) | | |
| PEAVINE | | | 1 (7) | 1 (37) | 1 (50) |
| DANDELION | 1 (25) | 1 (16) | 1 (15) | 1 (25) | |
| WILD ONION | 1 (25) | 1 (16) | | 1 (12) | |

| | | | | | |
|---|---|---|---|---|---|
| TOLMIE'S CATS-EAR | | | 1 (23) | 1 (12) | |
| CLEAVER'S BEDSTRAW | | 10 (16) | 10 (23) | | |
| SWORDFERN | | 1 (16) | 1 (7) | 1 (25) | |
| SHEEP-SORREL | | | 1 (30) | | |
| MOUNTAIN COLLOMIA | 1 (25) | | | | |
| RED LARKSPUR | | | 3 (23) | | |
| HAWKWEED | | 1 916) | 1 (15) | | |
| SMALL-FLOWERED DEERVETCH | | | 6 (15) | | |
| WOODLAND TARWEED | | | | 15 (12) | |
| FALSE LUPINE | | | | 1 (37) | |
| CALIFORNIA FESCUE | | | | 32 (75) | 41 (100) |
| HEDGEHOG DOGTAIL | 1 (50) | 15 (50) | | 2 (12) | 5 (50) |
| TALL OATGRASS | 1 (50) | | | 2 (12) | |
| BLUE WILDRYE | | 1 (66) | | 20 (25) | 4 (100) |
| CALIFORNIA BROME | | | 3 (46) | | |
| WESTERN FESCUE | | | 1 (23) | 2 (37) | |
| ORCHARDGRASS | | | 3 (38) | | |
| WOODRUSH | | | 1 (38) | | |
| RIPGUT GRASS | | | 6 (30) | | |
| KENTUCKY BLUEGRASS | | 2 (16) | 2 (15) | | 2 (50) |
| IDAHO FESCUE | | | | 2 (25) | |

Table 1. Environment and timber summary for the black oak-Douglas-fir-bigleaf maple type (QUKE-PSME-ACMA) N=4.

| RANGER DISTRICT | MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3810 | 3760 | 3900 | 31 |
| SLOPE (%) | 38 | 15 | 60 | 9 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .530 | .475 | .564 | .020 |
| SURFACE ROCK | 54 | 46 | 65 | 4 |
| STAND AGE | 129 | 75 | 275 | 50 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5065 | 1098 | 7488 | 1518 |
| BASAL AREA ($ft^2$) | 205 | 53 | 307 | 59 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1604 | 432 | 3712 | 738 |
| BASAL AREA ($ft^2$) | 76 | 20 | 167 | 33 |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 452 | 301 | 603 | 70 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 2. Soils summary for the black oak-Douglas-fir-bigleaf maple type (QUKE-PSME-ACMA) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 24 | >40 |
| AWC (inches) | 3.1 | 2.1 | 3.8 |
| PARENT ROCK | Sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 4 | 7 |
| COARSE FRAGMENT (%) | 10 | 5 | 15 |
| pH | 6.4 | 6.2 | 6.8 |
| COLOR | black, very dark brown | | |
| TEXTURE | gsil, sil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 68 | 52 | 85 |
| pH | 5.8 | 5.5 | 6.0 |
| COLOR | grayish brown, very grayish brown | | |
| TEXTURE | xstl, ksil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 3. Vegetation summary for the black oak-Douglas-fir-bigleaf maple type (QUKE-PSME-ACMA) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 98 | 2 |
| GRASS COVER | 12 | 3 | 30 | 6 |
| HERB COVER | 6 | 1 | 15 | 3 |
| SHRUB COVER | 2 | 1 | 2 | <1 |
| TREE COVER | 92 | 85 | 97 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| OREGON WHITE OAK (QUGA2) | 10 | 25 |
| BLACK OAK (QUKE) | 36 | 100 |
| DOUGLAS-FIR (PSME) | 41 | 100 |
| BIGLEAF MAPLE (ACMA) | 6 | 100 |
| PONDEROSA PINE (PIPO) | 32 | 75 |
| PACIFIC MADRONE (ARME3) | 5 | 25 |
| SUGAR PINE (PILA) | 5 | 25 |
| CANYON LIVE OAK (QUCH2) | 8 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| BLACK OAK (QUKE) | 1 | 75 |
| OREGON WHITE OAK (QUGA2) | 1 | 25 |
| DOUGLAS-FIR (PSME) | 7 | 100 |
| CANYON LIVE OAK (QUCH2) | 1 | 100 |
| BIGLEAF MAPLE (ACMA) | 1 | 50 |
| SUGAR PINE (PILA) | 1 | 25 |
| PONDEROSA PINE (PIPO) | 2 | 50 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 1 | 50 |
| WILD ROSE (ROGY) | 1 | 25 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 25 |
| SNOWBERRY (SYMO) | 1 | 75 |
| CEOANTHUS (CEA) | 1 | 25 |
| HAZELNUT (COCOC) | 1 | 25 |
| BLACKCAP (RULE) | 1 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| SWEET CICELY (OSCH) | 1 | 100 |
| MOUNTAIN YARROW (ACLA2) | 1 | 50 |
| HOUND'S TONGUE (CYGR) | 1 | 50 |
| SOAP PLANT (CHPO2) | 1 | 75 |
| FIRECRACKER FLOWER (BRID) | 1 | 25 |
| BEDSTRAW (GAL2) | 1 | 100 |
| VETCH (VIC3) | 1 | 25 |
| IRIS (IRI) | 1 | 50 |
| WILD ONION (ALL2) | 1 | 25 |
| HAWKWEED (HIAL) | 1 | 50 |
| BRAKENFERN (PTAQL) | 5 | 50 |
| CORALROOT (CORAL) | 1 | 50 |
| HEDGEHOG DOGTAIL (CYEC) | 1 | 50 |
| BLUE WILD RYE (ELGL) | 1 | 50 |
| LEMMON'S NEEDLEGRASS (STLE) | 1 | 50 |
| LACE HAIRGRASS (AIEL) | 1 | 25 |

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Table 4. Environment and timber summary for the Oregon white oak-black oak/firecracker flower type (QUGA2-QUKE/BRID) N=6.

| RANGER DISTRICT | MAD RIVER, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3885 | 3620 | 4520 | 136 |
| SLOPE (%) | 32 | 17 | 50 | 6 |
| ASPECT | S. EAST | | | |
| SOLAR RADIATION INDEX * | .518 | .440 | .586 | .020 |
| SURFACE ROCK | 15 | 1 | 20 | 9 |
| STAND AGE | 217 | 118 | 377 | 41 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 925 | 101 | 1888 | 297 |
| BASAL AREA ($ft^2$) | 34 | 7 | 60 | 10 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 4365 | 2059 | 7257 | 683 |
| BASAL AREA ($ft^2$) | 219 | 107 | 340 | 32 |
| SITE CLASS | 4-5 | | | |
| SITE INDEX | 75-100 | | | |
| STAND DENSITY INDEX | 469 | 307 | 593 | 51 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 5. Soils summary for the Oregon white oak-black oak/firecracker flower type (QUGA2-QUKE/BRID) N=6.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 25 | >40 |
| AWC (inches) | 5.2 | 4.3 | 6.8 |
| PARENT ROCK | Schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 3 | 10 |
| COARSE FRAGMENT (%) | 13 | 5 | 25 |
| pH | 6.3 | 6.0 | 6.5 |
| COLOR | dark brown, very dark brown | | |
| TEXTURE | l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 21 | 10 | 42 |
| pH | 5.6 | 5.0 | 6.5 |
| COLOR | dark brown, brown | | |
| TEXTURE | gsil, sil, l | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 6. Vegetation summary for the Oregon white oak-black oak/firecracker flower type (QUGA2-QUKE/BRID) N=6.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 99 | 2 |
| GRASS COVER | 76 | 60 | 85 | 8 |
| HERB COVER | 15 | 2 | 25 | 6 |
| SHRUB COVER | 2 | 0 | 5 | 1 |
| TREE COVER | 81 | 65 | 90 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| OREGON WHITE OAK (QUGA2) | 40 | 100 |
| BLACK OAK (QUKE) | 40 | 100 |
| DOUGLAS-FIR (PSME) | 9 | 83 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| BLACK OAK (QUKE) | 6 | 83 |
| OREGON WHITE OAK (QUGA2) | 2 | 33 |
| DOUGLAS-FIR (PSME) | 3 | 66 |
| CANYON LIVE OAK (QUCH2) | 1 | 50 |
| **SHRUBS** | | |
| SNOWBERRY (SYMO) | 2 | 50 |
| **HERBS & GRASSES** | | |
| SWEET CICELY (OSCH) | 1 | 83 |
| MOUNTAIN YARROW (ACLA2) | 4 | 66 |
| HOUND'S TONGUE (CYGR) | 1 | 33 |
| SOAP PLANT (CHPO) | 1 | 50 |
| FIRECRACKER FLOWER (BRID) | 1 | 100 |
| BEDSTRAW (GAL2) | 5 | 66 |
| BRODIAEA (BRO) | 1 | 66 |
| DANDELION (TAOF) | 1 | 50 |
| MOUNTAIN COLLOMIA (COGR) | 1 | 33 |
| IRIS (IRI) | 1 | 33 |
| HEDGEHOG DOGTAIL (CYEC) | 15 | 50 |
| BLUE WILDRYE (ELGL) | 1 | 66 |

121301

Table 7. Environment and timber summary for the Oregon white oak-black oak/tall oatgrass type (QUGA2-QUKE/AREL1) N=13.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3088 | 2100 | 3840 | 141 |
| SLOPE (%) | 27 | 0 | 45 | 4 |
| ASPECT | S. EAST<br>S. WEST | | | |
| SOLAR RADIATION INDEX * | .507 | .472 | .585 | .013 |
| SURFACE ROCK | 1 | 0 | 6 | 1 |
| STAND AGE | 131 | 73 | 230 | 12 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 17 | 0 | 156 | 17 |
| BASAL AREA ($ft^2$) | 1 | 0 | 7 | 1 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 2759 | 126 | 4730 | 539 |
| BASAL AREA ($ft^2$) | 95 | 7 | 213 | 25 |
| SITE CLASS | 4-5 | | | |
| SITE INDEX | 75-100 | | | |
| STAND DENSITY INDEX | 271 | 225 | 368 | 44 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 8. Soils summary for the Oregon white oak-black oak/tall oatgrass type (QUGA2-QUKE/AREL1) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 39 | 35 | >40 |
| AWC (inches) | 5.2 | 4.4 | 6.8 |
| PARENT ROCK | Sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 11 | 3 | 17 |
| COARSE FRAGMENT (%) | 20 | 10 | 40 |
| pH | 6.5 | 5.5 | 7.0 |
| COLOR | very dark grayish brown, very dark gray, very dark brown | | |
| TEXTURE | gl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 26 | 6 | 58 |
| pH | 6.0 | 5.6 | 6.5 |
| COLOR | very dark grayish brown, dark yellowish brown, dark brown | | |
| TEXTURE | cl, gcl, gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 9. Vegetation summary for the Oregon white oak-black oak/tall oatgrass type (QUGA2-QUKE/AREL1) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | <1 |
| GRASS COVER | 62 | 30 | 55 | 5 |
| HERB COVER | 26 | 8 | 38 | 4 |
| SHRUB COVER | 1 | 0 | 4 | <1 |
| TREE COVER | 71 | 55 | 88 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| OREGON WHITE OAK (QUGA2) | 44 | 84 |
| BLACK OAK (QUKE) | 33 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| BLACK OAK (QUKE) | 1 | 61 |
| OREGON WHITE OAK (QUGA2) | 1 | 53 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 46 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| SWEET CICIELY (OSCH) | 1 | 76 |
| MOUNTAIN YARROW (ACLA2) | 2 | 46 |
| HOUND'S TONGUE (CYGR) | 2 | 100 |
| SOAP PLANT (CHPO) | 1 | 61 |
| BEDSTRAW (GAL) | 3 | 84 |
| AMERICAN VETCH (VIAMO) | 2 | 76 |
| MINER'S LETTUCE (MOPE2) | 3 | 84 |
| WESTERN BUTTERCUP (RAOC) | 1 | 84 |
| GAMBLEWEED (SACR) | 2 | 76 |
| JAPANESE HEDGE PARSLEY (TOJA) | 5 | 84 |
| IRIS (IRI) | 1 | 38 |
| WILD CUCUMBER (MAOR) | 2 | 38 |
| CHECKERBLOOM (SIMA) | 1 | 46 |
| TOLMIE'S CATS-EARS (CATO) | 1 | 23 |
| SHEEP-SORREL (RUAC) | 1 | 30 |
| RED LARKSPUR (DENU1) | 3 | 23 |
| CLOVER (TRMA) | 1 | 23 |
| CALIFORNIA FESCUE (FECA) | 4 | 76 |
| HEDGEHOG DOGTAIL (CYEC) | 25 | 76 |
| TALL OATGRASS (AREL1) | 37 | 92 |
| CALIFORNIA BROME (BRCA1) | 3 | 46 |
| WESTERN FESCUE (FEOC1) | 1 | 23 |
| ORCHARDGRASS (DACL) | 3 | 38 |
| WOOD RUSH (LUCO) | 1 | 38 |
| RIPGUT GRASS (BRRI1) | 6 | 30 |

120001

Table 10. Environment and timber summary for the Oregon white oak-Brewer's oak/California fescue (QUGA2-QUGAB/FECA) N= 8.

| RANGER DISTRICT | LOWER TRINITY, MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4825 | 4360 | 5150 | 96 |
| SLOPE (%) | 34 | 18 | 47 | 4 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .528 | .505 | .572 | .018 |
| SURFACE ROCK | 16 | 1 | 41 | 8 |
| STAND AGE | 75 | 59 | 102 | 10 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 2047 | 0 | 3094 | 696 |
| BASAL AREA ($ft^2$) | 93 | 0 | 180 | 37 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 686 | 0 | 1893 | 450 |
| BASAL AREA ($ft^2$) | 48 | 0 | 133 | 32 |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | 75-125 | | | |
| STAND DENSITY INDEX | 279 | 105 | 363 | 59 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 11. Soils summary for the Oregon white oak-Brewer's oak/California fescue type (QUGA2-QUGAB/FECA) N=8.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 32 | 15 | >40 |
| AWC (inches) | 3.2 | 1.2 | 5.3 |
| PARENT ROCK | Sandstone | | |
| A HORIZON: | 8 | 4 | 7 |
| THICKNESS (inches) | 28 | 10 | 30 |
| COARSE FRAGMENT (%) | 6.2 | 5.5 | 7.0 |
| pH | | | |
| COLOR | very dark grayish brown, very dark brown | | |
| TEXTURE | gl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 49 | 36 | 65 |
| pH | 5.7 | 5.1 | 6.5 |
| COLOR | dark brown, brown | | |
| TEXTURE | xksl, vkcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 12. Vegetation summary for the Oregon white oak-Brewer's oak/California fescue type (QUGA2-QUGAB/FECA) N=8.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 90 | 99 | 3 |
| GRASS COVER | 33 | 10 | 40 | 10 |
| HERB COVER | 12 | 2 | 30 | 4 |
| SHRUB COVER | 2 | 0 | 10 | 1 |
| TREE COVER | 78 | 70 | 90 | 7 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| OREGON WHITE OAK (QUGA2) | 37 | 50 |
| DOUGLAS-FIR (PSME) | 10 | 87 |
| WHITE FIR (ABCO) | 6 | 75 |
| INCENSE CEDAR (LIDE3) | 1 | 37 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 37 |
| BREWER'S OAK (QUGAB) | 50 | 100 |
| WHITE FIR (ABCO) | 2 | 50 |
| INCENSE CEDAR (LIDE3) | 1 | 37 |
| **SHRUBS** | | |
| SNOWBERRY (SYMO) | 1 | 25 |
| SERVICEBERRY (AMFL) | 3 | 25 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 25 |
| **HERBS & GRASSES** | | |
| MOUNTAIN YARROW (ACLA2) | 1 | 87 |
| SOAP PLANT (CHPO1) | 1 | 50 |
| FIRE-CRACKER FLOWER (BRID) | 1 | 62 |
| BEDSTRAW (GAL2) | 2 | 25 |
| VETCH (VIC3) | 2 | 75 |
| IRIS (IRI) | 2 | 50 |
| PEA VINE (LAT3) | 1 | 37 |
| DANDELION (TAR) | 1 | 25 |
| SWORDFERN (POMU1) | 1 | 25 |
| FALSE LUPINE (THMA) | 1 | 37 |
| TOLMIE'S CATS-EAR (CATO) | 1 | 25 |
| CALIFORNIA FESCUE (FECA) | 32 | 75 |
| BLUE WILD RYE (ELGL) | 20 | 25 |
| WESTERN FESCUE (FEOC) | 2 | 37 |
| IDAHO FESCUE (FEID) | 3 | 25 |

120501

Table 13. Environment and timber summary for the Oregon white oak-Douglas-fir/California fescue type (QUGA2-PSME/FECA) N=2.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2825 | 2640 | 3010 | 185 |
| SLOPE (%) | 36 | 20 | 53 | 16 |
| ASPECT (deg) | S. WEST | | | |
| SOLAR RADIATION INDEX * | .466 | .408 | .525 | .058 |
| SURFACE ROCK | 1 | 0 | 3 | 1 |
| STAND AGE | 100 | | | |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 4805 | | | |
| BASAL AREA ($ft^2$) | 267 | | | |
| SITE CLASS | 5 | | | |
| SITE INDEX | 75 | | | |
| STAND DENSITY INDEX | 564 | | | |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 14. Soils summary for the Oregon white oak-Douglas-fir/California fescue type (QUGA2-PSME/FECA) N=2.

| SOILS VARIABLES | MEAN |
|---|---|
| TEMPERATURE REGIME | Mesic |
| DEPTH ** (inches) | 29 |
| AWC (inches) | 3.2 |
| PARENT ROCK | Sandstone |
| A HORIZON: | |
| THICKNESS (inches) | 8 |
| COARSE FRAGMENT (%) | 15 |
| pH | 6.3 |
| COLOR | very dark brown |
| TEXTURE | gl |
| SUB-SURFACE HORIZON: | |
| COARSE FRAGMENT (%) | 39 |
| pH | 5.5 |
| COLOR | very dark grayish brown |
| TEXTURE | vgl |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 15. Vegetation summary for the Oregon white oak-Douglas-fir/California fescue type (QUGA2-PSME/FECA) N=2.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 90 | 97 | 3 |
| GRASS COVER | 50 | 15 | 85 | 35 |
| HERB COVER | 11 | 8 | 15 | 3 |
| SHRUB COVER | 1 | 1 | 2 | <1 |
| TREE COVER | 86 | 75 | 98 | 11 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| OREGON WHITE OAK (QUGA2) | 83 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| OREGON WHITE OAK (QUGA2) | 1 | 50 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 1 | 50 |
| SNOWBERRY (SYMO) | 1 | 50 |
| OCEANSPRAY (HODI) | 2 | 50 |
| **HERBS & GRASSES** | | |
| SWEET CICELY (OSCH) | 3 | 50 |
| HOUND'S TONGUE (CYGR) | 2 | 100 |
| FIRECRACKER FLOWER (BRID) | 1 | 100 |
| BEDSTRAW (GAL2) | 3 | 100 |
| AMERICAN VETCH (VIAMO) | 2 | 50 |
| GAMBLEWEED (SACR) | 2 | 50 |
| PEA VINE (LAT3) | 1 | 50 |
| CALIFORNIA HAREBELL (CAPR3) | 1 | 50 |
| WOODFERN (DRAU2) | 2 | 50 |
| CALIFORNIA FESCUE (FECA) | 41 | 100 |
| HEDGEHOG DOGTAIL (CYEC) | 5 | 50 |
| BLUE WILDRYE (ELGL) | 3 | 100 |
| KENTUCKY BLUEGRASS (POPR) | 2 | 50 |
| BROME (BRMA) | 8 | 50 |

Appendix C. List of plant species identified in oak woodlands with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Quercus garyana | 73% | 25 | 2 | 97 | 95 | 42.6 | 27.9 | 5.6 | 11.5 |
| Quercus kellogii | 67% | 23 | 3 | 75 | 72 | 35.5 | 22.4 | 4.7 | 9.7 |
| Pseudotsuga menziesii | 58% | 20 | 1 | 80 | 79 | 14.5 | 22.0 | 4.9 | 10.3 |
| Abies concolor | 17% | 6 | 1 | 20 | 19 | 6.0 | 7.7 | 3.1 | 8.0 |
| Acer macrophyllum | 17% | 6 | 2 | 10 | 8 | 4.7 | 2.9 | 1.2 | 3.0 |
| Pinus ponderosa | 14% | 5 | 1 | 65 | 64 | 21.2 | 25.4 | 11.4 | 31.5 |
| Libocedrus decurrens | 11% | 4 | 1 | 10 | 9 | 3.3 | 4.5 | 2.3 | 7.2 |
| Arbutus menziesii | 2% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Pinus lambertiana | 2% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Quercus chrysolepis | 2% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Quercus kelloggii | 47% | 16 | 1 | 20 | 19 | 2.6 | 4.8 | 1.2 | 2.5 |
| **Tree understory** | | | | | | | | | |
| Quercus garryana | 35% | 12 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Pseudotsuga menziesii | 32% | 11 | 1 | 15 | 14 | 4.3 | 5.1 | 1.5 | 3.4 |
| Quercus garryana breweri | 26% | 9 | 5 | 85 | 80 | 45.0 | 31.5 | 10.5 | 24.2 |
| Quercus chrysolepis | 23% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Abies concolor | 14% | 5 | 1 | 4 | 3 | 1.8 | 1.3 | .6 | 1.6 |
| Acer macrophyllum | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Libocedrus decurrens | 11% | 4 | 1 | 5 | 4 | 2.0 | 2.0 | 1.0 | 3.2 |
| Pinus lambertiana | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus ponderosa | 5% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Cornus nuttallii | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Rhus diversiloba | 29% | 10 | 1 | 4 | 3 | 1.8 | 1.1 | .4 | .8 |
| Symphoricarpos mollis | 20% | 7 | 1 | 3 | 2 | 1.3 | .8 | .3 | .7 |
| Rosa gymnocarpa | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier florida | 8% | 3 | 1 | 5 | 4 | 2.3 | 2.3 | 1.3 | 5.7 |
| Berberis nervosa | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Symphoricarpos acutus | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corylus cornuta californica | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Holodiscus discolor | 5% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Symphoricarpos sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier alnifolia | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos patula | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus cuneatus | 2% | 1 | 50 | 50 | 0 | 50.0 | .0 | .0 | .0 |
| Ceanothus integerrimus | 2% | 1 | 4 | 4 | 0 | 4.0 | .0 | .0 | .0 |
| Eriodictyon californicum | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lonicera sp. | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Penstemon lemmonii | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Prunus emarginata | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Ribes sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus leucodermis | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilax californica | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Osmorhiza chilensis | 61% | 21 | 1 | 3 | 2 | 1.3 | .6 | .1 | .3 |
| Achillea lanulosa | 58% | 20 | 1 | 10 | 9 | 2.1 | 2.2 | .5 | 1.0 |
| Cynoglossum grande | 55% | 19 | 1 | 10 | 9 | 1.8 | 2.1 | .5 | 1.0 |
| Chlorogalum pomeridianum | 52% | 18 | 1 | 2 | 1 | 1.1 | .2 | .1 | .1 |
| Brodiaea ida-maia | 44% | 15 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium triflorum | 44% | 15 | 1 | 10 | 9 | 3.0 | 3.1 | .8 | 1.7 |
| Vicia americana oregana | 38% | 13 | 1 | 5 | 4 | 1.6 | 1.2 | .3 | .7 |
| Montia perfoliata | 35% | 12 | 1 | 15 | 14 | 2.7 | 4.1 | 1.2 | 2.6 |
| Ranunculus occidentalis | 35% | 12 | 1 | 3 | 2 | 1.3 | .6 | .2 | .4 |
| Sanicula crassicaulis | 32% | 11 | 1 | 5 | 4 | 2.1 | 1.4 | .4 | .9 |
| Torilis japonica | 32% | 11 | 1 | 15 | 14 | 4.5 | 4.6 | 1.4 | 3.1 |
| Galium sp. | 29% | 10 | 1 | 15 | 14 | 2.5 | 4.4 | 1.4 | 3.1 |
| Vicia sp. | 29% | 10 | 1 | 5 | 4 | 2.0 | 1.3 | .5 | 1.1 |
| Iris sp. | 20% | 7 | 1 | 3 | 2 | 1.4 | .8 | .3 | .7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Brodiaea sp. | 14% | 5 | 1 | 2 | 1 | 1.2 | .4 | .2 | .6 |
| Iris tenuissima | 17% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Marah oreganus | 17% | 6 | 1 | 4 | 3 | 2.2 | 1.2 | .5 | 1.2 |
| Sidalcea malvaeflora | 17% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 14% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taraxacum officinale | 14% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Allium sp. | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calochortus tolmiei | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium sp. | 11% | 4 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Galium aparine | 11% | 4 | 1 | 20 | 19 | 10.2 | 7.8 | 3.9 | 12.3 |
| Lotus sp. | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polystichum munitum | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rumex acetosella | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taraxacum sp. | 11% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia grandiflora | 8% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Delphinium nudicaule | 8% | 3 | 1 | 8 | 7 | 3.3 | 4.0 | 2.3 | 10.0 |
| Fragaria californica | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium albiflorum | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lagophylla sp. | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus micranthus | 5% | 2 | 1 | 10 | 9 | 5.5 | 6.4 | 4.5 | 57.2 |
| Madia madioides | 8% | 3 | 1 | 15 | 14 | 6.0 | 7.8 | 4.5 | 19.4 |
| Thermopsis macrophylla | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium macraei | 8% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brodiaea pulchella | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calochortus sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Campanula prenanthoides | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cirsium sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dentaria californica | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dodecatheon hendersonii | 5% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Epilobium sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Fritillaria sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris chrysophylla | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pteridium aquilinum lanug. | 5% | 2 | 1 | 10 | 9 | 5.5 | 6.4 | 4.5 | 57.2 |
| Sedum sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trientalis latifolia | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium ovatum | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia angustifolia | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achillea millefolium | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Adenocaulon bicolor | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Asclepias sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aspidotis californica | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calypso bulbosa | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chimaphila umbellata occident. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chlorogalum sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clarkia sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia heterophylla | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus arvensis | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | . |
| Corallorhiza maculata | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza striata | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cryptantha sp. | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Cymopterus globosus | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Dryopteris arguta | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Epilobium minutum | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erianthus sp. | 2% | 1 | 6 | 6 | 0 | 6.0 | .0 | .0 | .0 |
| Eriogonum caninum | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriogonum latifolium nudum | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Eriogonum sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erodium cicutarium | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erysimum sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erythronium sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Euphorbia sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Gilia capitata | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lepidium campestre | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Linum angustifolium | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lithophragma sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lomatium macrocarpum | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Lomatium sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Marah sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Monardella odoratissima | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Moneses uniflora reticulata | 2% | 1 | 15 | 15 | 0 | 15.0 | .0 | .0 | .0 |
| Montia sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Nemophila menziesii | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Nemophila sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Osmorhiza sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pityopus californicus | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Plantago lanceolata | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polygonum sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola picta | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola picta aphylla | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ranunculus occidentalis | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ranunculus sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sanicula sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sanicula tuberosa | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Saxifraga sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Senecio sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sisyrinchium bellum | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stachys rigida | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stellaria jamesiana | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tellima grandiflora | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Triteleia sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Verbascum thapsus | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia americana | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia californica | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Wyethia longicaulis | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Wyethia sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Festuca californica | 52% | 18 | 1 | 80 | 79 | 17.6 | 27.0 | 6.4 | 13.4 |
| Cynosurus echinatus | 50% | 17 | 1 | 60 | 59 | 17.7 | 17.1 | 4.1 | 8.8 |
| Arrhenatherum elatius | 38% | 13 | 2 | 70 | 68 | 34.4 | 24.3 | 6.8 | 14.7 |
| Elymus glaucus | 29% | 10 | 1 | 35 | 34 | 5.3 | 10.5 | 3.3 | 7.5 |
| Bromus carinatus | 17% | 6 | 1 | 5 | 4 | 2.8 | 1.7 | .7 | 1.8 |
| Festuca occidentalis | 17% | 6 | 1 | 3 | 2 | 1.7 | .8 | .3 | .9 |
| Dactylis glomerata | 14% | 5 | 1 | 10 | 9 | 3.0 | 3.9 | 1.8 | 4.9 |
| Luzula comosa | 14% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus rigidus | 11% | 4 | 1 | 15 | 14 | 5.8 | 6.4 | 3.2 | 10.2 |
| Poa pratensis | 11% | 4 | 1 | 3 | 2 | 2.0 | .8 | .4 | 1.3 |
| Festuca idahoensis | 8% | 3 | 2 | 5 | 3 | 3.3 | 1.5 | .9 | 3.8 |
| Danthonia californica | 5% | 2 | 2 | 4 | 2 | 3.0 | 1.4 | 1.0 | 12.7 |
| Festuca subulata | 5% | 2 | 5 | 10 | 5 | 7.5 | 3.5 | 2.5 | 31.8 |
| Juncus sp. | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stipa lemmonii | 5% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aira elegans | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Avena sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus mollis | 2% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Bromus sp. | 2% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Bromus tectorum | 2% | 1 | 20 | 20 | 0 | 20.0 | .0 | .0 | .0 |
| Carex sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Deschampsia elongata | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca arundinacea | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heleocharis sp. | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Holcus lanatus | 2% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica harfordii | 2% | 1 | 30 | 30 | 0 | 30.0 | .0 | .0 | .0 |
| Stipa sp. | 2% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# REDWOOD SERIES

Appendix E. List of plant species identified in the redwood series with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Lithocarpus densiflora | 100% | 7 | 2 | 60 | 58 | 25.3 | 22.6 | 8.5 | 20.9 |
| Sequoia sempervirens | 100% | 7 | 1 | 75 | 74 | 27.7 | 28.2 | 10.7 | 26.1 |
| Pseudotsuga menziesii | 85% | 6 | 5 | 60 | 55 | 29.2 | 18.0 | 7.4 | 18.9 |
| Alnus oregana | 42% | 3 | 10 | 30 | 20 | 16.7 | 11.5 | 6.7 | 28.7 |
| Acer macrophyllum | 28% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Arbutus menziesii | 28% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Chamaecyparis lawsoniana | 28% | 2 | 5 | 10 | 5 | 7.5 | 3.5 | 2.5 | 31.8 |
| Castanopsis chrysophylla | 14% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Libocedrus decurrens | 14% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Pinus lambertiana | 14% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Umbellularia californica | 14% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Lithocarpus densiflorus | 85% | 6 | 3 | 15 | 12 | 7.7 | 4.4 | 1.8 | 4.6 |
| Sequoia sempervirens | 85% | 6 | 1 | 10 | 9 | 3.7 | 3.3 | 1.3 | 3.4 |
| Pseudotsuga menziesii | 42% | 3 | 1 | 5 | 4 | 2.7 | 2.1 | 1.2 | 5.2 |
| Chamaecyparis lawsoniana | 28% | 2 | 4 | 5 | 1 | 4.5 | .7 | .5 | 6.4 |
| Castanopsis chrysophylla | 14% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Gaultheria shallon | 100% | 7 | 1 | 50 | 49 | 14.4 | 16.6 | 6.3 | 15.3 |
| Vaccinium ovatum | 100% | 7 | 15 | 70 | 55 | 48.6 | 21.2 | 8.0 | 19.6 |
| Rhododendron macrophyllum | 57% | 4 | 1 | 30 | 29 | 11.0 | 13.0 | 6.5 | 20.7 |
| Vaccinium parvifolium | 42% | 3 | 1 | 2 | 1 | 1.7 | .6 | .3 | 1.4 |
| Corylus cornuta californica | 28% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Rubus ursinus | 28% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Rhus diversiloba | 28% | 2 | 5 | 10 | 5 | 7.5 | 3.5 | 2.5 | 31.8 |
| Berberis nervosa | 14% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Lonicera hispidula vacillans | 14% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Oemleria cerasiformis | 14% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Rhododendron occidentale | 14% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Polystichum munitum | 71% | 5 | 5 | 30 | 25 | 17.0 | 10.4 | 4.6 | 12.9 |
| Trientalis latifolia | 57% | 4 | 1 | 5 | 4 | 2.3 | 1.9 | .9 | 3.0 |
| Oxalis oregana | 42% | 3 | 2 | 25 | 23 | 10.7 | 12.5 | 7.2 | 31.1 |
| Trillium ovatum | 42% | 3 | 2 | 5 | 3 | 3.0 | 1.7 | 1.0 | 4.3 |
| Whipplea modesta | 42% | 3 | 1 | 10 | 9 | 4.7 | 4.7 | 2.7 | 11.7 |
| Pteridium aquilinum lanug. | 28% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Stellaria jamesiana | 28% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sempervirens | 28% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Adenocaulon bicolor | 14% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Adiantum pedatum aleuticum | 14% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Athyrium filix-femina calif. | 14% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Coptis laciniata | 14% | 1 | 15 | 15 | 0 | 15.0 | .0 | .0 | .0 |
| Goodyera oblongifolia | 14% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium albiflorum | 14% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Rubus parviflorus | 14% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Vancouveria planipetala | 14% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Grass sp. | 14% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# MOUNTAIN HEMLOCK SERIES

Table 52. Environment and timber summary for the mountain hemlock/sadler oak type (TSME-QUSA) N=5.

| RANGER DISTRICT | HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5304 | 4180 | 6600 | 487 |
| SLOPE (%) | 55 | 40 | 76 | 13 |
| ASPECT (deg) ** | N. EAST | | | |
| SOLAR RADIATION INDEX * | .358 | .248 | .406 | .040 |
| SURFACE ROCK | 7 | 1 | 15 | 3 |
| STAND AGE | 300 | 87 | 591 | 90 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11490 | 9639 | 14684 | 1655 |
| BASAL AREA ($ft^2$) | 247 | 240 | 333 | 42 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 330 | 243 | 411 | 38 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**Topographic shading and heavy snow packs in drainages contribute to a cool environment where snow often remains late into July.

Table 53. Soils summary for the mountain hemlock/sadler oak type (TSME/QUSA) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid/Cyric | | |
| DEPTH ** (inches) | 35 | 30 | >40 |
| AWC (inches) | 2.4 | 2.1 | 3.5 |
| PARENT ROCK | granite<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 2 | 10 |
| COARSE FRAGMENT (%) | 28 | 15 | 43 |
| pH | 6.1 | 5.3 | 7.0 |
| COLOR | dark brown | | |
| TEXTURE | gsl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 37 | 70 |
| pH | 6.4 | 5.6 | 7.8 |
| COLOR | dark brown | | |
| TEXTURE | vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 54. Vegetation summary for the mountain hemlock/sadler oak type (TSME/QUSA) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 84 | 55 | 99 | 7 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 30 | 1 | 55 | 12 |
| SHRUB COVER | 70 | 60 | 80 | 13 |
| TREE COVER | 56 | 40 | 70 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 8 | 80 |
| WHITE FIR (ABCO) | 7 | 60 |
| DOUGLAS-FIR (PSME) | 10 | 40 |
| BREWER'S SPRUCE (PIBR) | 4 | 40 |
| WESTERN WHITE PINE (PIMO3) | 10 | 20 |
| MOUNTAIN HEMLOCK (TSME) | 36 | 100 |
| LODGEPOLE PINE (PICO) | 18 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 2 | 60 |
| WHITE FIR (ABCO) | 1 | 60 |
| DOUGLAS-FIR (PSME) | 2 | 20 |
| INCENSE CEDAR (LIDE3) | 2 | 20 |
| BREWER'S SPRUCE (PIBR) | 1 | 40 |
| MOUNTAIN HEMLOCK (TSME) | 3 | 100 |
| CHINQUAPIN (CACH2) | 1 | 40 |
| PACIFIC DOGWOOD (CONU2) | 1 | 20 |
| BLUE ELDERBERRY (SACA4) | 1 | 20 |
| PACIFIC YEW (TABR) | 1 | 20 |
| LODGEPOLE PINE (PICO3) | 2 | 20 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 10 | 100 |
| WILD ROSE (ROGY) | 1 | 20 |
| PINEMAT MANZANITA (ARNE2) | 32 | 40 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 52 | 60 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 40 |
| THIMBLEBERRY (RUPA2) | 1 | 20 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 20 |
| SERVICEBERRY (AMAL) | 1 | 40 |
| GREENLEAF MANZANITA (ARPA9) | 2 | 20 |
| GOOSEBERRY (RIB) | 2 | 20 |
| OREGON BOXWOOD (PAMY) | 8 | 40 |
| SLENDER SALAL (GAOV) | 8 | 40 |
| MOUNTAIN ASH (SOCA3) | 1 | 20 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 40 |
| PRINCE'S PINE (CHUMO) | 2 | 60 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 60 |
| HAWKWEED (HIAL) | 1 | 20 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 40 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 20 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| VANILLALEAF (ACTR) | 4 | 60 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 20 |
| SMALL BEDSTRAW (GATR2) | 1 | 20 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 40 |
| STREAM VIOLET (VIGL) | 1 | 20 |
| QUEEN'S CUP (CLUN2) | 10 | 60 |
| STARRY SOLOMON'S PLUME (SMST) | 2 | 20 |
| CORALROOT (COR2) | 1 | 20 |
| WHITE TRILLIUM (TROV2) | 1 | 60 |
| WILD STRAWBERRY (FRCA1) | 9 | 60 |
| STARFLOWER (TRLA3) | 1 | 40 |
| WOODLAND PENSTEMON (PENE1) | 1 | 40 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 40 |
| LEAFY LOUSEWORT (PERA1) | 1 | 60 |
| TWINFLOWER (LIBOL) | 40 | 40 |
| WINDFLOWER (ANQUM) | 1 | 20 |
| PENSTEMON (PENST) | 1 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 40 |
| FOAMFLOWER (TITRU) | 1 | 40 |
| EVERLASTING (ANT) | 1 | 20 |
| WILLOW-HERB (EPILO) | 1 | 20 |
| LEWISIA (LEW) | 1 | 40 |
| SEDGE (CAR1) | 1 | 20 |
| CALIFORNIA BROME (BRCA1) | 1 | 20 |
| LARGE MOUNTAIN BROME (BRMA3) | 1 | 20 |

Appendix G. List of plant species identified in the mountain hemlock series with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Tsuga mertensiana | 100% | 11 | 1 | 60 | 59 | 20.0 | 21.1 | 6.3 | 14.1 |
| Abies magnifica shastensis | 90% | 10 | 3 | 75 | 72 | 38.3 | 28.5 | 9.0 | 20.4 |
| Abies concolor | 36% | 4 | 2 | 30 | 28 | 13.0 | 11.9 | 6.0 | 19.0 |
| Picea breweriana | 27% | 3 | 1 | 5 | 4 | 2.7 | 2.1 | 1.2 | 5.2 |
| Pseudotsuga menziesii | 27% | 3 | 1 | 10 | 9 | 7.0 | 5.2 | 3.0 | 12.9 |
| Pinus contorta | 18% | 2 | 1 | 18 | 17 | 9.5 | 12.0 | 8.5 | 108.0 |
| Pinus monticola | 18% | 2 | 7 | 10 | 3 | 8.5 | 2.1 | 1.5 | 19.1 |
| **Tree understory** | | | | | | | | | |
| Tsuga mertensiana | 100% | 11 | 1 | 8 | 7 | 1.8 | 2.1 | .6 | 1.4 |
| Abies magnifica shastensis | 81% | 9 | 1 | 3 | 2 | 1.6 | .9 | .3 | .7 |
| Abies concolor | 36% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Picea breweriana | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Castanopsis chrysophylla | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cornus nuttallii | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Libocedrus decurrens | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Pinus contorta | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Pinus monticola | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pseudotsuga menziesii | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Sambucus caerulea | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taxus brevifolia | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Vaccinium membranaceum | 54% | 6 | 2 | 70 | 68 | 28.3 | 29.7 | 12.1 | 31.1 |
| Quercus sadleriana | 45% | 5 | 1 | 25 | 24 | 9.8 | 9.1 | 4.1 | 11.4 |
| Acer glabrum torreyi | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos nevadensis | 18% | 2 | 4 | 60 | 56 | 32.0 | 39.6 | 28.0 | 355.8 |
| Gaultheria ovatifolia | 18% | 2 | 1 | 15 | 14 | 8.0 | 9.9 | 7.0 | 88.9 |
| Paxistima myrsinites | 18% | 2 | 1 | 15 | 14 | 8.0 | 9.9 | 7.0 | 88.9 |
| Rosa gymnocarpa | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier florida | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier pallida | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos patula | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Berberis nervosa | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes sp. | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Rubus lasiococcus | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Rubus parviflorus | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sorbus californica | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Pyrola secunda | 72% | 8 | 1 | 3 | 2 | 1.6 | .7 | .3 | .6 |
| Chimaphila umbellata occid. | 54% | 6 | 1 | 6 | 5 | 2.2 | 1.9 | .8 | 2.0 |
| Pyrola picta | 54% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clintonia uniflora | 45% | 5 | 1 | 10 | 9 | 6.4 | 4.9 | 2.2 | 6.1 |
| Achlys triphylla | 36% | 4 | 1 | 8 | 7 | 4.8 | 2.9 | 1.4 | 4.6 |
| Anemone deltoidea | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Fragaria californica | 27% | 3 | 1 | 20 | 19 | 8.7 | 10.0 | 5.8 | 24.9 |
| Goodyera oblongifolia | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Linnaea borealis longiflora | 27% | 3 | 1 | 40 | 39 | 27.0 | 22.5 | 13.0 | 55.9 |
| Pedicularis racemosa | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium ovatum | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vancouveria hexandra | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica mollis | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aster sp. | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chimaphila menziesii | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Disporum hookeri | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium albiflorum | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon nemorosus | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tiarella unifoliata | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trientalis latifolia | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sempervirens | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone quinquefolia minor | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone quinquefolia oregana | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Antennaria sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium triflorum | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lewisia cotyledon | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lewisia leana | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon anguineus | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon deustus | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pteridium aquilinum lanug. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina racemosa amplex. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina stellata | 9% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Viola glabella | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Carex sp. | 27% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus carinatus | 18% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus marginatus | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus sp. | 9% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# PORT-ORFORD CEDAR SERIES

Table 1. Confirmed locations of Port-Orford cedar plant associations by National Forest and Ranger District (first half).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | | X | X | |
| ORLEANS RD | X | X | X | X | | X |
| LOWER TRINITY RD | | | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | X | X | X | X |
| HAPPY CAMP RD | | | X | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RD | | | | | | |

Table 2. Comparison of environment and soil variables by plant association in the Port-Orford cedar series (first half).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | CHLA/GASH | CHLA-RHMA/GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| NUMBER OF PLOTS | 16 | 18 | 12 | 10 | 8 | 9 |
| **ENVIRONMENT:** ELEVATION (ft) | 3165 | 3269 | 3143 | 3913 | 4756 | 4040 |
| ASPECT (deg) | NORTH | NORTHWEST NORTHEAST | NORTHEAST | NORTHEAST WEST | NORTHWEST | NORTHEAST SOUTH |
| SLOPE (%) | 31 | 32 | 21 | 38 | 27 | 31 |
| RADIATION INDEX | .393 | .376 | .453 | .421 | .412 | .461 |
| SURFACE ROCK(%) | 1 | 1 | 3 | 5 | 7 | 4 |
| **SOILS:** SOIL DEPTH (in) | 37 | 36 | 38 | 30 | 29 | 37 |
| AWC | 4.9 | 3.9 | 5.4 | 2.6 | 2.5 | 4.2 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 5 | 5 | 5 | 6 | 6 | 6 |
| CO. FRAG. (%) | 28 | 32 | 25 | 42 | 33 | 28 |
| COLOR | dark brown, reddish brown | dark yellowish brown, dark brown, reddish brown | dark brown, dark yellowish brown, dark reddish brown | dark brown, dark yellowish brown | dark brown, dark grayish brown | brown, dark brown, very dark grayish brown |
| TEXTURE | l, gl, vgl | gl, vgl, vgcl | l, gl, vgl | gl, vgl | vgcl, gl, xgl | gl, vgl |
| PARENT MATERIAL | phyllite, diorite, schist, sandstone | phyllite, mafic, greenstone, serpentine | serpentine, peridotite, gneiss, sandstone | serpentine, peridotite, greenstone | serpentine, peridotite | serpentine, peridotite |
| SOIL FAMILY | Hugo, Clallam | Goldridge, Hugo, Clallam, Weitchpec | Weitchpec, Goldridge, Hugo | Weitchpec, Althouse | Hungry | Weitchpec |

Table 3. Comparison of stand structure variables by plant association in the Port-Orford cedar series for stands ≥ 200 years old (first half).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| NUMBER OF PLOTS | 13 | 18 | 12 | 10 | 8 | 9 |
| STAND AGE | 434 | 467 | 450 | 370 | 393 | 360 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 14,121 | 12,498 | 10,751 | 11,867 | 11,043 | 11,173 |
| BASAL AREA ($ft^2$) | 369 | 338 | 313 | 351 | 357 | 329 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 500 | 156 | 56 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 28 | 8 | 5 | 0 | 0 | 0 |
| SITE CLASS | 1A-1 | 1A-3 | 2-4 | 1-3 | 2-3 | 2-3 |
| STAND DENSITY INDEX | 569 | 490 | 498 | 508 | 540 | 496 |

Table 4. Comparison of vegetation variables by plant association in the Port-Orford cedar series (first half).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 98 | 98 | 95 | 93 | 91 | 95 |
| GRASS COVER | 1 | <1 | 1 | 1 | <1 | <1 |
| FORB COVER | 9 | 8 | 6 | 14 | 8 | 6 |
| SHRUB COVER | 63 | 70 | 38 | 19 | 43 | 45 |
| TREE COVER | 88 | 79 | 77 | 80 | 74 | 77 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| PORT-ORFORD CEDAR | 44 (100) | 44 (100) | 42 (100) | 29 (100) | 34 (100) | 49 (100) |
| DOUGLAS-FIR | 38 (100) | 32 (100) | 24 (100) | 30 (100) | 18 (100) | 13 (100) |
| WHITE FIR | 2 (6) | 9 (11) | 5 (7) | 15 (100) | 11 (100) | 10 (100) |
| SUGAR PINE | 8 (25) | 6 (33) | 4 (61) | 10 (60) | 4 (25) | 9 (70) |
| CHINQUAPIN | 11 (43) | 8 (66) | 1 (30) | 3 (20) | | |
| INCENSE CEDAR | | | 1 (7) | 8 (60) | 4 (50) | 10 (10) |
| TANOAK | 16 (50) | 6 (22) | 9 (61) | | | |
| WESTERN WHITE PINE | | | 5 (7) | | 11 (100) | |
| PACIFIC MADRONE | 4 (80) | 4 (11) | 2 (30) | 1 (20) | | |
| RED FIR | | | | | 2 (12) | 5 (20) |
| BREWER'S SPRUCE | | 1 (5) | 1 (7) | 3 (10) | 2 (37) | 1 (10) |
| PACIFIC YEW | 2 (18) | 3 (22) | 5 (15) | | | 3 (10) |
| WHITE ALDER | 5 (6) | 2 (5) | 3 (7) | | | |

Table 4. Comparison of vegetation variables by plant association in the Port-Orford cedar series (first half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| PORT-ORFORD CEDAR | 5 (100) | 4 (100) | 9 (100) | 2 (100) | 3 (100) | 1 (100) |
| WHITE FIR | 3 (18) | 1 (11) | 2 (15) | 3 (100) | 2 (87) | 2 (100) |
| DOUGLAS-FIR | 1 (50) | 3 (44) | 2 (53) | 2 (70) | 1 (12) | 1 (30) |
| TANOAK | 5 (75) | 2 (55) | 2 (69) | 2 (20) | | |
| CHINQUAPIN | 1 (37) | 3 (50) | 1 (30) | 1 (20) | | 2 (30) |
| PACIFIC YEW | 1 (18) | 2 (16) | 1 (30) | 3 (30) | | 1 (10) |
| SUGAR PINE | 2 (12) | 1 (11) | 1 (30) | 1 (60) | 1 (12) | 1 (20) |
| RED FIR | | | | 1 (10) | 1 (37) | |
| INCENSE CEDAR | | | | 1 (40) | | |
| WESTERN WHITE PINE | | | 1 (7) | | 1 (62) | |
| PACIFIC DOGWOOD | | 1 (5) | | | | |
| BREWER'S SPRUCE | | 1 (5) | | 1 (10) | 1 (12) | |
| CALIFORNIA BAY | | 2 (5) | | 1 (10) | | |
| WHITE ALDER | | 3 (5) | | | | |

Table 4. Comparison of vegetation variables by plant association in the Port-Orford cedar series (first half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| RED HUCKLEBERRY | 3 (56) | 2 (100) | 2 (76) | 6 (70) | 30 (12) | 2 (50) |
| HUCKLEBERRY OAK | 2 (18) | 2 (16) | 4 (53) | 11 (100) | 17 (100) | 4 (80) |
| TRAILING BLACKBERRY | 1 (50) | 1 (27) | 1 (76) | 1 (50) | 2 (50) | 2 (70) |
| SADLER OAK | 1 (12) | 7 (44) | 1 (7) | 1 (60) | 4 (75) | 1 (50) |
| WILD ROSE | 1 (18) | 1 (38) | 1 (38) | 1 (40) | 2 (75) | 1 (10) |
| DWARF OREGON-GRAPE | 6 (62) | 3 (55) | 3 (38) | 2 (50) | 2 (25) | 1 (10) |
| WESTERN AZALEA | 8 (31) | 5 (33) | 24 (100) | | 8 (37) | 32 (100) |
| SALAL | 53 (100) | 36 (94) | 12 (46) | 2 (10) | 50 (12) | |
| PACIFIC RHODODENDRON | 3 (62) | 35 (100) | 2 (30) | | | |
| TUMBLEWEED | 1 (6) | | 3 (7) | 3 (30) | 1 (37) | 1 (30) |
| SLENDER SALAL | 2 (12) | 4 (11) | 1 (38) | 1 (10) | 2 (12) | 5 (30) |
| HAZELNUT | 1 (6) | | 1 (7) | 1 (10) | 3 (12) | 3 (30) |
| THIMBLEBERRY | 1 (25) | | 1 (7) | 1 (10) | 1 (12) | |
| THIN-LEAVED HUCKLEBERRY | | | | 2 (10) | 13 (37) | |
| PINEMAT MANZANITA | | | 1 (7) | 1 (30) | 10 (75) | 2 (20) |
| OREGON BOXWOOD | 1 (6) | 2 (5) | | 1 (20) | | |

Table 4. Comparison of vegetation variables by plant association in the Port-Orford cedar series (first half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA/GASH | CHLA/RHMA-GASH | CHLA/RHOC | CHLA-ABCO/QUVA | CHLA-ABCO-PIMO3/QUVA | CHLA-ABCO/RHOC |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| PRINCE'S PINE | 2 (62) | 3 (55) | 1 (53) | 2 (70) | 2 (100) | 1 (70) |
| RATTLESNAKE PLANTAIN | 1 (68) | 1 (77) | 1 (69) | 1 (50) | 1 (37) | 1 (60) |
| TWINFLOWER | 2 (43) | 3 (66) | 1 (38) | 7 (60) | 4 (37) | 2 (40) |
| BEARGRASS | 1 (50) | 3 (83) | 2 (76) | 3 (70) | 3 (87) | 3 (40) |
| STARFLOWER | 1 (31) | 1 (33) | 1 (38) | 1 (70) | 1 (37) | 1 (70) |
| WHITE TRILLIUM | 1 (50) | 1 (50) | 1 (38) | 1 (30) | 1 (37) | 1 (30) |
| HOOKER'S FAIRYBELLS | 1 (18) | 1 (11) | 1 (7) | 1 (60) | 1 (62) | |
| VANILLALEAF | 2 (37) | 1 (5) | 2 (7) | 2 (20) | 1 (12) | 2 (10) |
| WHITE-VEINED WINTERGREEN | 1 (25) | 1 (11) | 1 (7) | 1 (30) | 1 (37) | 1 (40) |
| QUEEN'S CUP | 2 (6) | 1 (5) | 1 (7) | 2 (30) | 1 (50) | 1 (40) |
| WESTERN MODESTY | 1 (37) | 1 (16) | 1 (23) | 2 (50) | | 1 (20) |
| IRIS | 1 (18) | | | 1 (60) | 1 (50) | 1 (20) |
| SWORDFERN | 1 (50) | 1 (33) | 1 (23) | 1 (20) | 1 (25) | 1 (10) |
| BRACKENFERN | 1 (31) | 1 (27) | 1 (7) | 1 (20) | 1 (25) | 1 (40) |
| THREE-LEAVED ANEMONE | | | | 1 (20) | 1 (37) | |
| ONE-SIDED WINTERGREEN | 1 (6) | | | | 1 (37) | 2 (10) |
| WHITE INSIDE-OUT FLOWER | 1 (18) | 2 (11) | 1 (7) | 1 (40) | | |
| FALSE SOLOMON'S SEAL | 1 (12) | 1 (5) | 1 (15) | 1 (20) | 1 (12) | 1 (20) |

| | | | | | | |
|---|---|---|---|---|---|---|
| LITTLE PRINCE'S PINE | 1 (25) | 1 (16) | 1 (7) | 1 (10) | 1 (25) | |
| HAWKWEED | | | | 1 (50) | 1 (25) | |
| TRAILPLANT | | | | 1 (10) | | |
| TOOTHED WINTERGREEN | 1 (6) | 1 (5) | 1 (15) | 1 (30) | 1 (37) | 1 (20) |
| REDWOOD VIOLET | 1 (18) | 1 (11) | 1 (7) | 1 (20) | 2 (12) | |
| LADYFERN | 2 (37) | | 1 (7) | | | 1 (20) |
| REDWOOD IVY | 2 (37) | 1 (22) | 1 (23) | | | |
| SEDGE | 2 (31) | 4 (11) | 2 (61) | 1 (20) | 1 (25) | 1 (50) |
| WESTERN FESCUE | 1 (6) | | | 1 (30) | 1 (25) | |

Table 5. Confirmed locations of Port-Orford cedar plant associations by National Forest and Ranger District (second half).

| LOCATION | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | | X | |
| ORLEANS RD | X | X | X | X | | |
| LOWER TRINITY RD | | | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | X | | X |
| HAPPY CAMP RD | X | X | X | X | | |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RD | | | | | | |

Table 6. Comparison of environment and soil variables by plant association in the Port-Orford cedar series (second half).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| NUMBER OF PLOTS | 21 | 17 | 17 | 22 | 9 | 2 |
| **ENVIRONMENT:** ELEVATION (ft) | 4066 | 3770 | 4719 | 3425 | 2964 | 3295 |
| ASPECT (deg) | NORTHWEST NORTHEAST SOUTHWEST | NORTHWEST NORTHEAST | NORTH | NORTHWEST EAST | EAST WEST | SOUTHEAST |
| SLOPE (%) | 18 | 31 | 38 | 30 | 32 | 38 |
| RADIATION INDEX | .456 | .428 | .371 | .431 | .450 | .542 |
| SURFACE ROCK(%) | 5 | 6 | 12 | 9 | 13 | 4 |
| **SOILS:** SOIL DEPTH (in) | 31 | 33 | 29 | 34 | 27 | 38 |
| AWC | 3.5 | 2.9 | 2.5 | 3.3 | 1.8 | 3.3 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 8 | 8 | 9 | 5 | 5 | 6 |
| CO. FRAG. (%) | 37 | 42 | 42 | 31 | 62 | 40 |
| COLOR | dark brown, very dark brown, very dark grayish brown | dark brown, dark yellowish brown | dark brown, dark yellowish brown | dark brown, dark reddish brown, dark yellowish brown, dark grayish brown | dark brown, very dark grayish brown | very dark grayish brown |
| TEXTURE | gl, vgl, vgsl | vgl, gl, vgcl, gsl | gl, vgl, vkl, vgcl, vstl | gl, vgl, gsil | xgl, vgl, gsl | vgl |
| PARENT MATERIAL | mafic, granite, schist, phyllite | granite, mafic, greenstone | diorite, gabbro, ultramafic, greenstone | serpentine, peridotite | serpentine, peridotite | schist, mixed |
| SOIL FAMILY | Clallam, Althouse | Clallam, Hugo, Kistirn, Althouse | Tallac, Althouse, Skymor, Bins | Weitchpec, Clallam | Weitchpec, Goulding V., Walnett | Forgay |

Table 7. Comparison of stand structure variables by plant association in the Port-Orford cedar series (second half).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| NUMBER OF PLOTS | 18 | 16 | 15 | 21 | 9 | 2 |
| STAND AGE | 405 | 402 | 391 | 415 | 453 | 215 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 15,573 | 12,073 | 10,409 | 9,850 | 5,170 | 8,280 |
| BASAL AREA ($ft^2$) | 401 | 337 | 330 | 303 | 257 | 253 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 0 | 148 | 0 | 28 | 58 | 442 |
| BASAL AREA ($ft^2$) | 0 | 8 | 0 | 2 | 3 | 26 |
| SITE CLASS | 1-3 | 1A-3 | 3-4 | 1-4 | 3-4 | 2-3 |
| STAND DENSITY INDEX | 535 | 477 | 503 | 457 | 404 | 459 |

Table 8. Comparison of vegetation variables by plant association in the Port-Orford cedar series (second half).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 96 | 95 | 94 | 91 | 94 | 98 |
| GRASS COVER | 2 | <1 | <1 | 1 | 5 | 1 |
| FORB COVER | 43 | 22 | 23 | 9 | 15 | 3 |
| SHRUB COVER | 13 | 40 | 35 | 33 | 66 | 2 |
| TREE COVER | 82 | 78 | 79 | 70 | 55 | 98 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| PORT-ORFORD CEDAR | 44 (100) | 26 (100) | 24 (100) | 28 (100) | 28 (100) | 37 (100) |
| DOUGLAS-FIR | 30 (90) | 30 (100) | 19 (82) | 26 (100) | 15 (100) | 30 (100) |
| WHITE FIR | 16 (95) | 18 (88) | 25 (100) | 5 (4) | | |
| SUGAR PINE | 4 (33) | 7 (38) | 3 (35) | 7 (86) | 12 (11) | |
| CHINQUAPIN | | 11 (33) | | 4 (9) | | |
| INCENSE CEDAR | 3 (14) | | 11 (17) | 7 (40) | 10 (11) | 8 (100) |
| TANOAK | 1 (4) | 2 (11) | | 14 (22) | | |
| WESTERN WHITE PINE | 2 (4) | 3 (11) | 5 (35) | | 5 (100) | |
| PACIFIC MADRONE | | | | 5 (31) | 2 (55) | |
| RED FIR | | 6 (11) | 16 (96) | 2 (4) | | |
| BREWER'S SPRUCE | 1 (9) | 6 (16) | 3 (23) | 1 (9) | | |
| PACIFIC YEW | | 2 (16) | 3 (5) | 4 (9) | | |
| WHITE ALDER | | | | | | 3 (100) |

Table 8. Comparison of vegetation variables by plant association in the Port-Orford cedar series (second half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| PORT-ORFORD CEDAR | 3 (95) | 3 (94) | 2 (94) | 3 (100) | 3 (88) | 1 (100) |
| WHITE FIR | 2 (95) | 3 (88) | 3 (88) | 1 (31) | 1 (44) | 1 (50) |
| DOUGLAS-FIR | 2 (42) | 1 (83) | 1 (17) | 1 (72) | 2 (77) | 5 (50) |
| TANOAK | 1 (9) | 2 (33) | | 5 (54) | 9 (22) | 1 (50) |
| CHINQUAPIN | 1 (14) | 8 (50) | 2 (5) | 1 (9) | | |
| PACIFIC YEW | 1 (14) | 2 (22) | 1 (17) | 2 (36) | 1 (22) | |
| SUGAR PINE | | 1 (16) | 1 (11) | 1 (45) | 1 (11) | |
| RED FIR | 1 (4) | 1 (5) | 3 (88) | | | |
| INCENSE CEDAR | 1 (9) | 1 (5) | 1 (5) | 1 (45) | 1 (11) | 1 (50) |
| WESTERN WHITE PINE | | 1 (5) | 1 (11) | | 1 (100) | |
| PACIFIC OOGWOOD | 3 (42) | | | | | |
| BREWER'S SPRUCE | | 1 (22) | 1 (17) | 1 (4) | | |
| CALIFORNIA BAY | 2 (4) | | | | 7 (55) | |
| WHITE ALDER | | | | | | 1 (50) |

Table 8. Comparison of vegetation variables by plant association in the Port-Orford cedar series (second half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| RED HUCKLEBERRY | 1 (28) | 6 (61) | 2 (17) | 5 (81) | 6 (88) | 1 (50) |
| HUCKLEBERRY OAK | 1 (33) | 3 (50) | 4 (58) | 23 (100) | 37 (100) | |
| TRAILING BLACKBERRY | 2 (80) | 1 (5) | 1 (64) | 1 (31) | 1 (11) | 1 (100) |
| SADLER OAK | 3 (71) | 22 (100) | 19 (100) | 2 (18) | 2 (11) | |
| WILD ROSE | 1 (76) | 2 (50) | 2 (64) | 1 (45) | 1 (33) | |
| DWARF OREGON-GRAPE | 3 (28) | 5 (61) | 5 (64) | 2 (27) | 4 (33) | 2 (50) |
| WESTERN AZALEA | 1 (14) | 11 (11) | 4 (11) | 7 (9) | 12 (55) | |
| SALAL | | 31 (11) | | | 2 (11) | |
| PACIFIC RHODODENDRON | | 3 (11) | | 1 (4) | 16 (33) | |
| TUMBLEWEED | 1 (23) | 2 (27) | 1 (23) | 1 (31) | 3 (44) | |
| SLENDER SALAL | 2 (23) | 4 (33) | 12 (17) | 1 (18) | 4 (11) | |
| HAZELNUT | 5 (71) | 5 (27) | 2 (5) | 1 (4) | | |
| THIMBLEBERRY | 3 (66) | 1 (16) | 2 (11) | 2 (4) | | |
| THIN-LEAVED HUCKLEBERRY | 1 (4) | 1 (38) | 8 (82) | | | |
| PINEMAT MANZANITA | | 1 (11) | 6 (11) | 2 (22) | 3 (11) | |
| OREGON BOXWOOD | 1 (19) | 1 (61) | 9 (17) | 1 (4) | | |

Table 8. Comparison of vegetation variables by plant association in the Port-Orford cedar series (second half continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | CHLA-ABCO/HERB | CHLA-ABCO/QUSA | CHLA-ABMAS/QUSA-VAME | CHLA-PSME/QUVA | CHLA-PIMO3/QUVA | CHLA-LIDE3-ALRH |
| HERBS & GRASSES (% COVER) (CONSTANCY) | | | | | | |
| PRINCE'S PINE | 3 (71) | 2 (94) | 3 (94) | 1 (54) | 2 (55) | 1 (50) |
| RATTLESNAKE PLANTAIN | 1 (42) | 1 (77) | 1 (88) | 1 (72) | 1 (22) | |
| TWINFLOWER | 13 (66) | 10 (83) | 9 (35) | 2 (36) | 3 (66) | 1 (50) |
| BEARGRASS | 1 (4) | 4 (44) | 1 (17) | 3 (77) | 3 (88) | |
| STARFLOWER | 1 (85) | 1 (33) | 2 (47) | 1 (45) | 1 (22) | 1 (50) |
| WHITE TRILLIUM | 1 (57) | 1 (44) | 1 (76) | 1 (4) | | |
| HOOKER'S FAIRYBELLS | 2 (85) | 1 (55) | 1 (76) | 1 (18) | 1 (22) | 1 (50) |
| VANILLALEAF | 9 (80) | 5 (66) | 9 (52) | 2 (18) | | 1 (100) |
| WHITE-VEINED WINTERGREEN | 1 (52) | 1 (61) | 1 (35) | 1 (22) | 1 (11) | |
| QUEEN'S CUP | 6 (61) | 2 (44) | 5 (70) | | | |
| WESTERN MODESTY | 2 (9) | 2 (27) | | 2 (54) | 5 (66) | 1 (50) |
| IRIS | 1 (14) | 1 (22) | 1 (5) | 1 (63) | 1 (100) | |
| SWORDFERN | 1 (9) | 1 (5) | 1 (29) | 1 (31) | 2 (66) | 1 (50) |
| BRACKENFERN | 2 (42) | 1 (27) | 2 (17) | 1 (4) | 1 (11) | |
| THREE-LEAVED ANEMONE | 1 (61) | 1 (38) | 2 (52) | | | |
| ONE-SIDED WINTERGREEN | 1 (42) | 1 (38) | 1 (70) | | 1 (11) | |
| WHITE INSIDE-OUT FLOWER | 8 (71) | 1 (16) | 1 (11) | 1 (27) | | 1 (50) |
| FALSE SOLOMON'S SEAL | 1 (9) | 1 (22) | 1 (29) | 1 (36) | 1 (22) | |
| LITTLE PRINCE'S PINE | 1 (19) | 1 (11) | 1 (23) | 1 (18) | 1 (11) | |
| HAWKWEED | 1 (19) | 1 (27) | 1 (11) | 1 (4) | 1 (11) | 1 (50) |

| | | | | | | |
|---|---|---|---|---|---|---|
| TRAILPLANT | 1 (52) | 1 (11) | 1 (29) | 1 (13) | | 1 (50) |
| TOOTHED WINTERGREEN | 1 (4) | 1 (11) | 1 (5) | | 1 (33) | |
| REDWOOD VIOLET | 2 (9) | 1 (33) | 1 (11) | | | |
| LADYFERN | 2 (38) | 1 (5) | 15 (5) | | | |
| REDWOOD IVY | | | | 1 (13) | 1 (22) | |
| SEDGE | 2 (28) | 1 (22) | 1 (5) | 2 (18) | 4 (33) | |
| WESTERN FESCUE | | 1 (5) | | 1 (9) | 1 (11) | 1 (50) |

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Table 1. Environment and timber summary for the Port-Orford cedar/salal type (CHLA/GASH) N=16.

| RANGER DISTRICT | ORLEANS, UKONOM, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3165 | 2500 | 3740 | 116 |
| SLOPE (%) | 31 | 8 | 62 | 5 |
| ASPECT (deg) | NORTH** | | | |
| SOLAR RADIATION INDEX * | .393 | .224 | .473 | .022 |
| SURFACE ROCK | 1 | 0 | 5 | <1 |
| STAND AGE | 379 | 130 | 652 | 42 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 14,121 | 11,338 | 18,221 | 889 |
| BASAL AREA ($ft^2$) | 369 | 280 | 480 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 500 | 0 | 1290 | 144 |
| BASAL AREA ($ft^2$) | 28 | 0 | 53 | 8 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 569 | 395 | 707 | 36 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**Some southwest facing slopes with topographic shading.

MPOST=Lower and middle third slope positions.
Concave, undulating horizontal and vertical micro-position.

Table 2. Soils summary for the Port-Orford cedar/salal type (CHLA/GASH) N=16.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 23 | >40 |
| AWC (inches) | 4.9 | 1.3 | 6.6 |
| PARENT ROCK | phyllite, diorite, schist, sandstone | | |
| SOIL FAMILY | Hugo, Clallam | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 2 | 12 |
| COARSE FRAGMENT (%) | 28 | 10 | 40 |
| pH | 6.4 | 5.0 | 7.1 |
| COLOR | dark brown, reddish brown | | |
| TEXTURE | l, gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 38 | 29 | 45 |
| pH | 6.5 | 5.8 | 7.2 |
| COLOR | brown, dark yellowish brown, yellowish brown | | |
| TEXTURE | vgl, vgcl, gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Primarily deep soils and occasionally moderately deep.

Table 3. Vegetation summary for the Port-Orford cedar/salal type (CHLA/GASH) N=16.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 90 | 99 | <1 |
| GRASS COVER | 1 | 0 | 7 | <1 |
| HERB COVER | 9 | 2 | 22 | 2 |
| SHRUB COVER | 63 | 40 | 95 | 6 |
| TREE COVER | 88 | 65 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 44 | 100 |
| DOUGLAS-FIR (PSME) | 38 | 100 |
| SUGAR PINE (PILA) | 8 | 25 |
| CHINQUAPIN (CACH2) | 11 | 43 |
| TANOAK (LIDE2) | 16 | 50 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 5 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 50 |
| TANOAK (LIDE2) | 5 | 75 |
| CHINQUAPIN (CACH2) | 1 | 37 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 3 | 56 |
| TRAILING BLACKBERRY (RUUR) | 1 | 50 |
| DWARF OREGON-GRAPE (BENE1) | 6 | 62 |
| WESTERN AZALEA (RHOC) | 8 | 31 |
| SALAL (GASH) | 53 | 100 |
| PACIFIC RHODODENDRON (RHMA) | 3 | 62 |
| THIMBLEBERRY (RUPA2) | 1 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 2 | 62 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 68 |
| TWINFLOWER (LIBOL) | 2 | 43 |
| BEARGRASS (XETE) | 1 | 50 |
| STARFLOWER (TRLA3) | 1 | 31 |
| WHITE TRILLIUM (TROV2) | 1 | 50 |
| VANILLALEAF (ACTR) | 2 | 37 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 25 |
| WESTERN MODESTY (WHMO) | 1 | 37 |
| SWORDFERN (POMU1) | 1 | 50 |
| BRACKENFERN (PTAQL) | 1 | 31 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 25 |
| LADYFERN (ATFIC) | 2 | 37 |
| REDWOOD IVY (VAPL) | 2 | 37 |
| SEDGE (CAR1) | 2 | 31 |

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Table 4. Environment and timber summary for the Port-Orford cedar/Pacific rhododendron-salal type (CHLA/RHMA-GASH) N=18.

| RANGER DISTRICT | ORLEANS, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3269 | 2700 | 3600 | 79 |
| SLOPE (%) | 32 | 10 | 60 | 5 |
| ASPECT (deg) | NORTHWEST NORTHEAST | | | |
| SOLAR RADIATION INDEX * | .376 | .276 | .476 | .015 |
| SURFACE ROCK | 1 | 0 | 7 | <1 |
| STAND AGE | 394 | 137 | 703 | 39 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12,498 | 9,286 | 18,781 | 1075 |
| BASAL AREA ($ft^2$) | 338 | 200 | 453 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 156 | 0 | 621 | 57 |
| BASAL AREA ($ft^2$) | 8 | 0 | 27 | 3 |
| SITE CLASS | 1A-3 | | | |
| SITE INDEX | 125-200 | | | |
| STAND DENSITY INDEX | 490 | 342 | 668 | 29 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Lower and middle one-third slope positions undulating, concave, and linear horizontal and vertical micro-relief.

Table 5. Soils summary for the Port-Orford cedar/Pacific rhododendron-salal type (CHLA/RHMA-GASH) N=18.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 36 | 22 | >40 |
| AWC (inches) | 3.9 | 2.1 | 6.6 |
| PARENT ROCK | phyllite, mafic,greenstone, serpentine | | |
| SOIL FAMILY | Goldridge, Hugo, Clallam, Weitchpec | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 2 | 12 |
| COARSE FRAGMENT (%) | 32 | 15 | 45 |
| pH | 6.0 | 4.9 | 7.0 |
| COLOR | dark yellowish brown, dark brown, reddish brown | | |
| TEXTURE | gl, vgl, vgcl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 44 | 22 | 71 |
| pH | 6.2 | 5.5 | 6.7 |
| COLOR | yellowish red, yellowish brown, brown, dark brown | | |
| TEXTURE | gl, gcl, vgl, vgcl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are mostly deep and occasionally moderately deep.

Table 6. Vegetation summary for the Port-Orford cedar/Pacific rhododendron-salal type (CHLA/RHMA-GASH) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 85 | 99 | <1 |
| GRASS COVER | <1 | 0 | 5 | <1 |
| HERB COVER | 8 | 1 | 17 | 1 |
| SHRUB COVER | 70 | 50 | 95 | 5 |
| TREE COVER | 79 | 55 | 98 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 44 | 100 |
| DOUGLAS-FIR (PSME) | 32 | 100 |
| SUGAR PINE (PILA) | 6 | 33 |
| CHINQUAPIN (CACH2) | 8 | 66 |
| TANOAK (LIDE2) | 6 | 22 |
| PACIFIC YEW (TABR) | 3 | 22 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 4 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 44 |
| TANOAK (LIDE2) | 2 | 55 |
| CHINQUAPIN (CACH2) | 3 | 50 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 2 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 27 |
| SADLER OAK (QUSA) | 7 | 44 |
| WILD ROSE (ROGY) | 1 | 38 |
| DWARF OREGON-GRAPE (BENE1) | 3 | 55 |
| WESTERN AZALEA (RHOC) | 5 | 33 |
| SALAL (GASH) | 36 | 94 |
| PACIFIC RHODODENDRON (RHMA) | 35 | 100 |
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 3 | 55 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 77 |
| TWINFLOWER (LIBOL) | 3 | 66 |
| BEARGRASS (XETE) | 3 | 83 |
| STARFLOWER (TRLA3) | 1 | 33 |
| WHITE TRILLIUM (TROV2) | 1 | 50 |
| SWORDFERN (POMU1) | 1 | 33 |
| BRACKENFERN (PTAQL) | 1 | 27 |
| REDWOOD IVY (VAPL) | 1 | 22 |
| FAIRY-SLIPPER (CABU2) | 1 | 27 |
| BOG WINTERGREEN (PYASP) | 1 | 22 |

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Table 7. Environment and timber summary for the Port-Orford cedar/western azalea type (CHLA/RHOC) N=12.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3143 | 2500 | 3940 | 150 |
| SLOPE (%) | 21 | 0 | 45 | 4 |
| ASPECT (deg) | NORTHEAST | | | |
| SOLAR RADIATION INDEX * | .453 | .325 | .510 | .014 |
| SURFACE ROCK | 3 | 0 | 6 | <1 |
| STAND AGE | 420 | 300 | 641 | 32 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10,751 | 6242 | 13,649 | 1418 |
| BASAL AREA ($ft^2$) | 313 | 213 | 453 | 34 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 56 | 0 | 287 | 27 |
| BASAL AREA ($ft^2$) | 5 | 0 | 13 | 3 |
| SITE CLASS | 2-4 | | | |
| SITE INDEX | 100-175 | | | |
| STAND DENSITY INDEX | 498 | 339 | 613 | 57 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Middle one-third slope positions, with undulating and linear horizontal and vertical micro-reliefs.

Table 8. Soils summary for the Port-Orford cedar/western azalea type (CHLA/RHOC) N=12.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 21 | >40 |
| AWC (inches) | 5.4 | 2.4 | 7.1 |
| PARENT ROCK | serpentine, peridotite, gneiss, sandstone | | |
| SOIL FAMILY | Weitchpec, Goldridge, Hugo | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 2 | 7 |
| COARSE FRAGMENT (%) | 25 | 10 | 35 |
| pH | 6.8 | 5.5 | 8.0 |
| COLOR | dark brown, dark yellowish brown, dark reddish brown | | |
| TEXTURE | l, gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 33 | 15 | 46 |
| pH | 7.4 | 6.5 | 8.0 |
| COLOR | dark yellowish brown, yellowish brown, dark brown | | |
| TEXTURE | gcl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Primarily deep soils and occasionally moderately deep.

Table 9. Vegetation summary for the Port-Orford cedar/western azalea type (CHLA/RHOC) N=12.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 80 | 99 | 2 |
| GRASS COVER | 1 | 0 | 5 | <1 |
| HERB COVER | 6 | 2 | 10 | <1 |
| SHRUB COVER | 38 | 10 | 50 | 7 |
| TREE COVER | 77 | 55 | 98 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 42 | 100 |
| DOUGLAS-FIR (PSME) | 24 | 100 |
| SUGAR PINE (PILA) | 4 | 61 |
| CHINQUAPIN (CACH2) | 1 | 30 |
| TANOAK (LIDE2) | 9 | 61 |
| PACIFIC MADRONE (ARME3) | 2 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 9 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 53 |
| TANOAK (LIDE2) | 2 | 69 |
| CHINQUAPIN (CACH2) | 1 | 30 |
| PACIFIC YEW (TABR) | 1 | 30 |
| SUGAR PINE (PILA) | 1 | 30 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 2 | 76 |
| HUCKLEBERRY OAK (QUVA) | 4 | 53 |
| TRAILING BLACKBERRY (RUUR) | 1 | 76 |
| WILD ROSE (ROGY) | 1 | 38 |
| DWARF OREGON-GRAPE (BENE1) | 3 | 38 |
| WESTERN AZALEA (RHOC) | 24 | 100 |
| SALAL (GASH) | 12 | 46 |
| PACIFIC RHODODENDRON (RHMA) | 2 | 30 |
| SLENDER SALAL (GAOV) | 1 | 38 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 1 | 53 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 69 |
| TWINFLOWER (LIBOL) | 1 | 38 |
| BEARGRASS (XETE) | 2 | 76 |
| STARFLOWER (TRLA3) | 1 | 38 |
| WHITE TRILLIUM (TROV2) | 1 | 38 |
| WESTERN MODESTY (WHMO) | 1 | 23 |
| SWORDFERN (POMU1) | 1 | 23 |
| REDWOOD IVY (VAPL) | 1 | 23 |
| FIVE-FINGER FERN (ADPEA) | 2 | 30 |
| SEDGE (CAR1) | 2 | 61 |

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Table 10. Environment and timber summary for the Port-Orford cedar-white fir/huckleberry oak type (CHLA-ABCO/QUVA) N=10.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3913 | 2980 | 4620 | 195 |
| SLOPE (%) | 38 | 18 | 68 | 6 |
| ASPECT (deg) | NORTHEAST WEST | | | |
| SOLAR RADIATION INDEX * | .421 | .248 | .499 | .030 |
| SURFACE ROCK | 5 | 0 | 7 | 2 |
| STAND AGE | 344 | 265 | 443 | 17 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11,867 | 8203 | 13,318 | 1139 |
| BASAL AREA ($ft^2$) | 351 | 240 | 413 | 30 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 508 | 399 | 678 | 35 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Found on lower one-third through upper one-third slopes adjacent to streams, on slopes with concave and linear horizontal and vertical micro-reliefs.

Because of proximity to other, drier types like PSME/QUVA, this type is younger than most CHLA types and hence is subjected to a higher frequency of stand-replacing events.

Table 11. Soils summary for the Port-Orford cedar-white fir/huckleberry oak type (CHLA-ABCO/QUVA) N=10.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 30 | 16 | >40 |
| AWC (inches) | 2.6 | 1.0 | 3.7 |
| PARENT ROCK | serpentine, peridotite, greenstone | | |
| SOIL FAMILY | Weitchpec, Althouse | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 8 |
| COARSE FRAGMENT (%) | 42 | 25 | 52 |
| pH | 6.3 | 5.5 | 6.9 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 35 | 61 |
| pH | 6.6 | 5.9 | 7.2 |
| COLOR | strong brown, dark yellowish brown, olive brown | | |
| TEXTURE | vgl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are mostly deep, with occasional moderately deep and shallow variants.

Table 12. Vegetation summary for the Port-Orford cedar-white fir/huckleberry oak type (CHLA-ABCO/QUVA) N=10.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 85 | 98 | 1 |
| GRASS COVER | 1 | 0 | 5 | <1 |
| HERB COVER | 14 | 4 | 18 | 3 |
| SHRUB COVER | 19 | 3 | 38 | 5 |
| TREE COVER | 80 | 70 | 90 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 29 | 100 |
| DOUGLAS-FIR (PSME) | 30 | 100 |
| WHITE FIR (ABCO) | 15 | 100 |
| SUGAR PINE (PILA) | 10 | 60 |
| CHINQUAPIN (CACH2) | 3 | 20 |
| INCENSE CEDAR (LIDE3) | 8 | 60 |
| PACIFIC MADRONE (ARME3) | 1 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 2 | 100 |
| WHITE FIR (ABCO) | 3 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 70 |
| TANOAK (LIDE2) | 2 | 20 |
| CHINQUAPIN (CACH2) | 1 | 20 |
| PACIFIC YEW (TABR) | 3 | 30 |
| SUGAR PINE (PILA) | 1 | 60 |
| INCENSE CEDAR (LIDE3) | 1 | 40 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 6 | 70 |
| HUCKLEBERRY OAK (QUVA) | 11 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 50 |
| SADLER OAK (QUSA) | 1 | 60 |
| WILD ROSE (ROGY) | 1 | 40 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 50 |
| TUMBLEWEED (AMAL) | 3 | 30 |
| PINEMAT MANZANITA (ARNE2) | 1 | 30 |
| OREGON BOXWOOD (PAMY) | 1 | 20 |

| **HERBS & GRASSES** | | |
|---|---|---|
| PRINCE'S PINE (CHUMO) | 2 | 70 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| TWINFLOWER (LIBOL) | 7 | 60 |
| BEARGRASS (XETE) | 3 | 70 |
| STARFLOWER (TRLA3) | 1 | 70 |
| WHITE TRILLIUM (TROV2) | 1 | 30 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 60 |
| VANILLALEAF (ACTR) | 2 | 20 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 30 |
| QUEEN'S CUP (CLUN2) | 2 | 30 |
| WESTERN MODESTY (WHMO) | 2 | 50 |
| IRIS (IRI) | 1 | 60 |
| SWORDFERN (POMU1) | 1 | 20 |
| BRACKENFERN (PTAQL) | 1 | 20 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 20 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 40 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 20 |
| HAWKWEED (HIAL) | 1 | 50 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 30 |
| REDWOOD VIOLET (VISE) | 1 | 20 |
| SHARP-TOOTHED ANGELICA (ANAR3) | 1 | 50 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 30 |
| CORALROOT (COR2) | 1 | 20 |
| SEDGE (CAR1) | 1 | 20 |
| WESTERN FESCUE (FEOC1) | 1 | 30 |
| CALIFORNIA FESCUE (FECA) | 2 | 20 |

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Table 13. Environment and timber summary for the Port-Orford cedar-white fir-western white pine/huckleberry oak type (CHLA-ABCO-PIMO3/QUVA) N=8.

| RANGER DISTRICT | HAPPY CAMP, UKONOM, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4756 | 4360 | 5180 | 101 |
| SLOPE (%) | 27 | 5 | 45 | 5 |
| ASPECT (deg) | NORTHWEST | | | |
| SOLAR RADIATION INDEX * | .412 | .321 | .476 | .023 |
| SURFACE ROCK | 7 | 2 | 10 | 2 |
| STAND AGE | 356 | 310 | 450 | 17 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11,043 | 9139 | 14,397 | 1107 |
| BASAL AREA ($ft^2$) | 357 | 293 | 400 | 19 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 540 | 471 | 580 | 32 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Found in middle and upper one-third slopes with undulating and linear horizontal and vertical micro-relief.

Table 14. Soils summary for the Port-Orford cedar-white fir-western white pine/huckleberry oak type (CHLA-ABCO-PIMO3/QUVA) N=8.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 29 | 14 | >40 |
| AWC (inches) | 2.5 | 1.2 | 3.9 |
| PARENT ROCK | serpentine, peridotite | | |
| SOIL FAMILY | Hungry | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 3 | 8 |
| COARSE FRAGMENT (%) | 3.3 | 16 | 43 |
| pH | 6.2 | 5.7 | 7.0 |
| COLOR | dark brown, dark grayish brown | | |
| TEXTURE | vgcl, gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 53 | 38 | 78 |
| pH | 6.7 | 5.8 | 7.5 |
| COLOR | dark yellowish brown, dark brown, olive brown | | |
| TEXTURE | vgcl, vgl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are deep, moderately deep, and shallow.

Table 15. Vegetation summary for the Port-Orford cedar-white fir-western white pine type (CHLA-ABCO-PIMO3/QUVA) N=8.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 75 | 99 | 3 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 8 | 2 | 18 | 2 |
| SHRUB COVER | 43 | 28 | 70 | 11 |
| TREE COVER | 74 | 60 | 85 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 34 | 100 |
| DOUGLAS-FIR (PSME) | 18 | 100 |
| WHITE FIR (ABCO) | 11 | 100 |
| SUGAR PINE (PILA) | 4 | 25 |
| INCENSE CEDAR (LIDE3) | 4 | 50 |
| WESTERN WHITE PINE (PIMO3) | 11 | 100 |
| BREWER'S SPRUCE (PIBR) | 2 | 37 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 100 |
| WHITE FIR (ABCO) | 2 | 87 |
| RED FIR (ABMAS) | 1 | 37 |
| WESTERN WHITE PINE (PIMO3) | 1 | 62 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 17 | 100 |
| TRAILING BLACKBERRY (RUUR) | 2 | 50 |
| SADLER OAK (QUSA) | 4 | 75 |
| WILD ROSE (ROGY) | 2 | 75 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 25 |
| WESTERN AZALEA (RHOC) | 8 | 37 |
| TUMBLEWEED (AMAL) | 1 | 37 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 13 | 37 |
| PINEMAT MANZANITA (ARNE2) | 10 | 75 |
| SITKA ALDER (ALSI2) | 3 | 25 |
| PYGMY HOLLY-GRAPE (BEPU) | 1 | 50 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 2 | 100 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 37 |
| TWINFLOWER (LIBOL) | 4 | 37 |
| BEARGRASS (XETE) | 3 | 87 |
| STARFLOWER (TRLA3) | 1 | 37 |
| WHITE TRILLIUM (TROV2) | 1 | 37 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 62 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 37 |
| QUEEN'S CUP (CLUN2) | 1 | 50 |
| IRIS (IRI) | 1 | 50 |
| SWORDFERN (POMU1) | 1 | 25 |
| BRACKENFERN (PTAQL) | 1 | 25 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 37 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 37 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 25 |
| HAWKWEED (HIAL) | 1 | 25 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 37 |
| RAYLESS ARNICA (ARDI3) | 1 | 37 |
| WASHINGTON LILY (LIWAP) | 1 | 37 |
| PEAVINE (LAT1) | 1 | 25 |
| SEDGE (CAR1) | 1 | 25 |
| WESTERN FESCUE (FEOC1) | 1 | 25 |

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Table 16. Environment and timber summary for the Port-Orford cedar-white fir/western azalea type (CHLA-ABCO/RHOC) N=9.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4040 | 3740 | 4850 | 150 |
| SLOPE (%) | 31 | 10 | 75 | 8 |
| ASPECT (deg) | NORTHEAST SOUTH | | | |
| SOLAR RADIATION INDEX * | .461 | .275 | .588 | .033 |
| SURFACE ROCK | 4 | 2 | 9 | 1 |
| STAND AGE | 354 | 222 | 550 | 37 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11,173 | 8689 | 15,493 | 1028 |
| BASAL AREA ($ft^2$) | 329 | 280 | 387 | 18 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 496 | 355 | 554 | 34 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Found in draws in upper one-third slope positions with concave, undulating, and linear horizontal and vertical micro-reliefs.

Table 17. Soils summary for the Port-Orford cedar-white fir/western azalea type (CHLA-ABCO/RHOC) N=9.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 37 | 25 | >40 |
| AWC (inches) | 4.2 | 2.2 | 5.5 |
| PARENT ROCK | serpentine, peridotite | | |
| SOIL FAMILY | Weitchpec | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 12 |
| COARSE FRAGMENT (%) | 28 | 10 | 46 |
| pH | 6.5 | 5.3 | 7.3 |
| COLOR | brown, dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 22 | 53 |
| pH | 7.0 | 6.2 | 8.0 |
| COLOR | dark brown, yellowish brown, light olive brown | | |
| TEXTURE | gl, vgl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Primarily deep soils, few moderately deep.

Table 18. Vegetation summary for the Port-Orford cedar-white fir/western azalea type (CHLA-ABCO/RHOC) N=9.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 90 | 98 | <1 |
| GRASS COVER | <1 | 0 | 3 | <1 |
| HERB COVER | 6 | 2 | 10 | <1 |
| SHRUB COVER | 45 | 10 | 59 | 8 |
| TREE COVER | 77 | 70 | 90 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 49 | 100 |
| DOUGLAS-FIR (PSME) | 13 | 100 |
| WHITE FIR (ABCO) | 10 | 100 |
| SUGAR PINE (PILA) | 9 | 70 |
| RED FIR (ABMAS) | 5 | 20 |
| JEFFERY PINE (PIJE) | 1 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 1 | 100 |
| WHITE FIR (ABCO) | 2 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 30 |
| CHINQUAPIN (CACH2) | 2 | 30 |
| SUGAR PINE (PILA) | 1 | 20 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 2 | 50 |
| HUCKLEBERRY OAK (QUVA) | 4 | 80 |
| TRAILING BLACKBERRY (RUUR) | 2 | 70 |
| SADLER OAK (QUSA) | 1 | 50 |
| WESTERN AZALEA (RHOC) | 32 | 100 |
| TUMBLEWEED (AMAL) | 1 | 30 |
| SLENDER SALAL (GAOV) | 5 | 30 |
| HAZELNUT (COCOC) | 3 | 30 |
| PINEMAT MANZANITA (ARNE2) | 2 | 20 |

| HERBS & GRASSES | | |
|---|---|---|
| PRINCE'S PINE (CHUMO) | 1 | 70 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 60 |
| TWINFLOWER (LIBOL) | 2 | 40 |
| BEARGRASS (XETE) | 3 | 40 |
| STARFLOWER (TRLA3) | 1 | 70 |
| WHITE TRILLIUM (TROV2) | 1 | 30 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 40 |
| QUEEN'S CUP (CLUN2) | 1 | 40 |
| WESTERN MODESTY (WHMO) | 1 | 20 |
| IRIS (IRI) | 1 | 20 |
| BRACKENFERN (PTAQL) | 1 | 40 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 20 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 20 |
| LADYFERN (ATFIC) | 1 | 20 |
| SHARP-TOOTHED ANGELICA (ANAR3) | 1 | 30 |
| ARROWLEAF GROUNDSEL (SETR) | 1 | 30 |
| FIVE-FINGER FERN (ADPEA) | 1 | 50 |
| PEAVINE (LAT1) | 1 | 20 |
| SEDGE (CAR1) | 1 | 50 |

Table 19. Environment and timber summary for the Port-Orford cedar-white fir/herb type (CHLA-ABCO/HERB) N=21.

| RANGER DISTRICT | UKONOM, ORLEANS, GASQUET, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4066 | 3600 | 5080 | 86 |
| SLOPE (%) | 18 | 3 | 40 | 3 |
| ASPECT (deg) | NORTHWEST NORTHEAST SOUTHWEST** | | | |
| SOLAR RADIATION INDEX * | .456 | .390 | .518 | .006 |
| SURFACE ROCK | 5 | 0 | 7 | 2 |
| STAND AGE | 361 | 170 | 575 | 25 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 15,573 | 8920 | 22,095 | 1378 |
| BASAL AREA ($ft^2$) | 401 | 280 | 520 | 28 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 535 | 410 | 666 | 34 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**Southwest facing slopes are moderated by topographic shading.

Found primarily in lower one-third slopes near water on alluvial fans with linear, undulating, and concave horizontal and vertical micro-relief.

Table 20. Soils summary for the Port-Orford cedar-white fir/herb type (CHLA-ABCO/HERB) N=21.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 31 | 16 | >40 |
| AWC (inches) | 3.5 | 1.0 | 5.0 |
| PARENT ROCK | mafic, granite, schist, phyllite | | |
| SOIL FAMILY | Clallam, Althouse | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 1 | 18 |
| COARSE FRAGMENT (%) | 37 | 10 | 68 |
| pH | 6.2 | 5.0 | 7.0 |
| COLOR | dark brown, very dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 43 | 20 | 76 |
| pH | 6.4 | 5.3 | 7.8 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | vgl, gl, xgl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are deep, moderately deep and on occasion shallow.

Table 21. Vegetation summary for the Port-Orford cedar-white fir/herb type (CHLA-ABCO/HERB) N=21.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 80 | 99 | 1 |
| GRASS COVER | 2 | 0 | 5 | 1 |
| HERB COVER | 43 | 3 | 90 | 6 |
| SHRUB COVER | 13 | 1 | 27 | 2 |
| TREE COVER | 82 | 70 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 44 | 100 |
| DOUGLAS-FIR (PSME) | 30 | 90 |
| WHITE FIR (ABCO) | 16 | 95 |
| SUGAR PINE (PILA) | 4 | 33 |
| PACIFIC DOGWOOD (CONU2) | 3 | 23 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 95 |
| WHITE FIR (ABCO) | 2 | 95 |
| DOUGLAS-FIR (PSME) | 2 | 42 |
| PACIFIC DOGWOOD (CONU2) | 3 | 42 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 1 | 28 |
| HUCKLEBERRY OAK (QUVA) | 1 | 33 |
| TRAILING BLACKBERRY (RUUR) | 2 | 80 |
| SADLER OAK (QUSA) | 3 | 71 |
| WILD ROSE (ROGY) | 1 | 76 |
| DWARF OREGON-GRAPE (BENE1) | 3 | 28 |
| TUMBLEWEED (AMAL) | 1 | 23 |
| SLENDER SALAL (GAOV) | 2 | 23 |
| HAZELNUT (COCOC) | 5 | 71 |
| THIMBLEBERRY (RUPA2) | 3 | 66 |
| SITKA ALDER (ALSI) | 7 | 28 |
| CREEPING SNOWBERRY (SYMO) | 1 | 23 |

| **HERBS & GRASSES** | | |
|---|---|---|
| PRINCE'S PINE (CHUMO) | 3 | 71 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 42 |
| TWINFLOWER (LIBOL) | 13 | 66 |
| STARFLOWER (TRLA3) | 1 | 85 |
| WHITE TRILLIUM (TROV2) | 1 | 57 |
| HOOKER'S FAIRYBELLS (DIHO2) | 2 | 85 |
| VANILLALEAF (ACTR) | 9 | 80 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 52 |
| QUEEN'S CUP (CLUN2) | 6 | 61 |
| BRACKENFERN (PTAQL) | 2 | 42 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 61 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 42 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 8 | 71 |
| TRAILPLANT (ADBI) | 1 | 52 |
| LADYFERN (ATFIC) | 2 | 38 |
| STARRY SOLOMON'S SEAL (SMST) | 4 | 28 |
| WILD GINGER (ASCA2) | 2 | 33 |
| ARROWLEAF GROUNDSEL (SETR) | 1 | 28 |
| SMALL BEDSTRAW (GATR) | 1 | 38 |
| PEAVINE (LAT1) | 9 | 23 |
| STREAM VIOLET (VIGL) | 1 | 23 |
| NETTLE-LEAF HYSOP (AGUR) | 2 | 23 |
| SEDGE (CAR1) | 2 | 28 |

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Table 22. Environment and timber summary for the Port-Orford cedar-white fir/sadler oak type (CHLA-ABCO/QUSA) N=17.

| RANGER DISTRICT | GASQUET, UKONOM, HAPPY CAMP, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3770 | 3220 | 4640 | 101 |
| SLOPE (%) | 31 | 0 | 60 | 4 |
| ASPECT (deg) | NORTHWEST NORTHEAST | | | |
| SOLAR RADIATION INDEX * | .428 | .319 | .515 | .014 |
| SURFACE ROCK | 6 | 0 | 12 | 2 |
| STAND AGE | 354 | 150 | 592 | 31 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12,073 | 8669 | 18,684 | 1616 |
| BASAL AREA ($ft^2$) | 337 | 240 | 440 | 36 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 148 | 0 | 746 | 69 |
| BASAL AREA ($ft^2$) | 8 | 0 | 27 | 3 |
| SITE CLASS | 1A-3 | | | |
| SITE INDEX | 125-200 | | | |
| STAND DENSITY INDEX | 477 | 327 | 576 | 47 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Found primarily in the lower one-third slope positions near running water on slopes with concave, undulating, and linear horizontal and vertical micro-relief.

Table 23. Soils summary for the Port-Orford cedar-white fir/sadler oak type (CHLA-ABCO/QUSA) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 33 | 22 | >40 |
| AWC (inches) | 2.9 | 1.6 | 4.6 |
| PARENT ROCK | granite, mafic, greenstone | | |
| SOIL FAMILY | Clallam, Hugo, Kistirn, Althouse | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 4 | 13 |
| COARSE FRAGMENT (%) | 42 | 25 | 60 |
| pH | 5.8 | 5.1 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | vgl, gl, vgcl, gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 30 | 65 |
| pH | 6.0 | 5.5 | 7.0 |
| COLOR | dark brown, dark yellowish brown, yellowish brown | | |
| TEXTURE | vgl, gl, gscl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are deep and moderately deep.

Table 24. Vegetation summary for the Port-Orford cedar-white fir/sadler oak type (CHLA-ABCO/QUSA) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 86 | 99 | 1 |
| GRASS COVER | <1 | 0 | 3 | <1 |
| HERB COVER | 22 | 3 | 40 | 4 |
| SHRUB COVER | 40 | 7 | 80 | 6 |
| TREE COVER | 78 | 55 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 26 | 100 |
| DOUGLAS-FIR (PSME) | 30 | 100 |
| WHITE FIR (ABCO) | 18 | 88 |
| SUGAR PINE (PILA) | 7 | 38 |
| CHINQUAPIN (CACH2) | 11 | 33 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 94 |
| WHITE FIR (ABCO) | 3 | 88 |
| DOUGLAS-FIR (PSME) | 1 | 83 |
| TANOAK (LIDE2) | 2 | 33 |
| CHINQUAPIN (CACH2) | 8 | 50 |
| PACIFIC YEW (TABR) | 2 | 22 |
| BREWER'S SPRUCE (PIBR) | 1 | 22 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 6 | 61 |
| HUCKLEBERRY OAK (QUVA) | 3 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 50 |
| SADLER OAK (QUSA) | 22 | 100 |
| WILD ROSE (ROGY) | 2 | 50 |
| DWARF OREGON-GRAPE (BENE1) | 5 | 61 |
| TUMBLEWEED (AMAL) | 2 | 27 |
| SLENDER SALAL (GAOV) | 4 | 33 |
| HAZELNUT (COCOC) | 5 | 27 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 1 | 38 |
| OREGON BOXWOOD (PAMY) | 1 | 61 |
| SITKA ALDER (ALSI) | 3 | 22 |
| CREEPING SNOWBERRY (SYMO) | 1 | 22 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 2 | 94 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 77 |
| TWINFLOWER (LIBOL) | 10 | 83 |
| BEARGRASS (XETE) | 4 | 44 |
| STARFLOWER (TRLA3) | 1 | 33 |
| WHITE TRILLIUM (TROV2) | 1 | 44 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 55 |
| VANILLALEAF (ACTR) | 5 | 66 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 61 |
| QUEEN'S CUP (CLUN2) | 2 | 44 |
| WESTERN MODESTY (WHMO) | 2 | 27 |
| IRIS (IRI) | 1 | 22 |
| BRACKENFERN (PTAQL) | 1 | 27 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 38 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 38 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 22 |
| HAWKWEED (HIAL) | 1 | 27 |
| REDWOOD VIOLET (VISE) | 1 | 33 |
| RAYLESS ARNICA (ARDI3) | 2 | 38 |
| WASHINGTON LILY (LIWAP) | 1 | 22 |
| STRIPED CORALROOT (COST) | 1 | 22 |
| SEDGE (CAR1) | 1 | 22 |

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Table 25. Environment and timber summary for the Port-Orford cedar-red fir/sadler oak-thin-leaved huckleberry type (CHLA-ABMAS/QUSA-VAME) N=17.

| RANGER DISTRICT | GASQUET, HAPPY CAMP, ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4719 | 3360 | 5270 | 121 |
| SLOPE (%) | 38 | 15 | 72 | 5 |
| ASPECT (deg) | NORTH | | | |
| SOLAR RADIATION INDEX * | .371 | .198 | .511 | .023 |
| SURFACE ROCK | 12 | 2 | 23 | 3 |
| STAND AGE | 387 | 155 | 1050 | 46 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10,409 | 6390 | 14,908 | 890 |
| BASAL AREA ($ft^2$) | 330 | 227 | 467 | 23 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 3-4 | | | |
| SITE INDEX | 100-125 | | | |
| STAND DENSITY INDEX | 503 | 333 | 626 | 37 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Found in lower one-third through upper one-third slope positions in cold draws with undulating, concave, and linear horizontal and vertical micro-relief.

Table 26. Soils summary for the Port-Orford cedar-red fir/sadler oak-thin-leaved huckleberry type (CHLA-ABMAS/QUSA-VAME) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | 15 | >40 |
| DEPTH ** (inches) | 29 | 1.1 | 4.0 |
| AWC (inches) | 2.5 | | |
| PARENT ROCK | diorite, gabbro, ultramafic, greenstone | | |
| SOIL FAMILY | Tallac, Althouse, Skymor, Bins | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 1 | 16 |
| COARSE FRAGMENT (%) | 42 | 24 | 72 |
| pH | 6.0 | 5.5 | 6.8 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, vgl, vkl, vgcl, vstl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 45 | 24 | 60 |
| pH | 6.3 | 5.7 | 7.0 |
| COLOR | dark yellowish brown, dark brown, olive brown | | |
| TEXTURE | vgcl, vkcl, vgl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are primarily moderately deep with some deep and shallow.

Table 27. Vegetation summary for the Port-Orford cedar-red fir/sadler oak-thin-leaved huckleberry type (CHLA-ABMAS/QUSA-VAME) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 94 | 85 | 99 | 2 |
| GRASS COVER | <1 | 0 | 5 | <1 |
| HERB COVER | 23 | 1 | 45 | 6 |
| SHRUB COVER | 35 | 1 | 70 | 6 |
| TREE COVER | 79 | 65 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 24 | 100 |
| DOUGLAS-FIR (PSME) | 19 | 82 |
| WHITE FIR (ABCO) | 25 | 100 |
| SUGAR PINE (PILA) | 3 | 35 |
| WESTERN WHITE PINE (PIMO3) | 5 | 35 |
| RED FIR (ABMAS) | 16 | 94 |
| BREWER'S SPRUCE (PIBR) | 3 | 23 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 2 | 94 |
| WHITE FIR (ABCO) | 3 | 88 |
| RED FIR (ABMAS) | 3 | 88 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 4 | 58 |
| TRAILING BLACKBERRY (RUUR) | 1 | 64 |
| SADLER OAK (QUSA) | 19 | 100 |
| WILD ROSE (ROGY) | 2 | 64 |
| DWARF OREGON-GRAPE (BENE1) | 5 | 64 |
| TUMBLEWEED (AMAL) | 1 | 23 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 8 | 82 |
| CREEPING SNOWBERRY (SYMO) | 1 | 23 |
| MOUNTAIN MAPLE (ACGLT) | 2 | 23 |

| **HERBS & GRASSES** | | |
|---|---|---|
| PRINCE'S PINE (CHUMO) | 3 | 94 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 88 |
| TWINFLOWER (LIBOL) | 9 | 35 |
| STARFLOWER (TRLA3) | 2 | 47 |
| WHITE TRILLIUM (TROV2) | 1 | 76 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 76 |
| VANILLALEAF (ACTR) | 9 | 52 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 35 |
| QUEEN'S CUP (CLUN2) | 5 | 70 |
| SWORDFERN (POMU1) | 1 | 29 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 52 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 70 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 29 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 23 |
| TRAILPLANT (ADBI) | 1 | 29 |
| WASHINGTON LILY (LIWAP) | 1 | 23 |
| TWAYBLADE (LICA4) | 1 | 29 |
| STICKY STARWORT (STJA) | 1 | 23 |
| LEAFY LOUSEWORT (PERA) | 3 | 23 |
| SUKSDORF'S BROME (BRSU) | 2 | 23 |

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Table 28. Environment and timber summary for the Port-Orford cedar-Douglas-fir/huckleberry oak type (CHLA-PSME/QUVA) N=22.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3425 | 2520 | 4260 | 100 |
| SLOPE (%) | 30 | 0 | 80 | 5 |
| ASPECT (deg) | NORTHWEST EAST | | | |
| SOLAR RADIATION INDEX * | .431 | .256 | .563 | .02 |
| SURFACE ROCK | 9 | 1 | 10 | 3 |
| STAND AGE | 391 | 129 | 666 | 33 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9850 | 5238 | 14,142 | 1187 |
| BASAL AREA ($ft^2$) | 303 | 133 | 333 | 28 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 28 | 0 | 151 | 17 |
| BASAL AREA ($ft^2$) | 2 | 0 | 13 | 1 |
| SITE CLASS | 1-4 | | | |
| SITE INDEX | 100-175 | | | |
| STAND DENSITY INDEX | 457 | 288 | 525 | 39 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Found primarily on middle and upper one-third slopes with linear, concave, and undulating horizontal micro-relief and linear, undulating, and convex vertical micro-relief.

Table 29. Soils summary for the Port-Orford cedar-Douglas-fir/huckleberry oak type (CHLA-PSME/QUVA) N=22.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 22 | >40 |
| AWC (inches) | 3.3 | 1.3 | 4.8 |
| PARENT ROCK | serpentine, peridotite | | |
| SOIL FAMILY | Weitchpec, Clallam | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 13 |
| COARSE FRAGMENT (%) | 31 | 20 | 55 |
| pH | 6.8 | 5.9 | 8.0 |
| COLOR | dark brown, dark reddish brown, dark yellowish brown, dark grayish brown | | |
| TEXTURE | gl, vgl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 45 | 21 | 70 |
| pH | 7.2 | 5.7 | 8.0 |
| COLOR | strong brown, dark yellowish brown, yellowish brown, olive brown | | |
| TEXTURE | gl, vgl, xgl, vkl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are deep and moderately deep.

Table 30. Vegetation summary for the Port-Orford cedar-Douglas-fir/huckleberry oak type (CHLA-PSME/QUVA) N=22.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 80 | 99 | 1 |
| GRASS COVER | 1 | 0 | 6 | <1 |
| HERB COVER | 9 | 3 | 15 | 1 |
| SHRUB COVER | 33 | 7 | 75 | 6 |
| TREE COVER | 70 | 45 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 28 | 100 |
| DOUGLAS-FIR (PSME) | 26 | 100 |
| SUGAR PINE (PILA) | 7 | 86 |
| INCENSE CEDAR (LIDE3) | 7 | 40 |
| TANOAK (LIDE2) | 14 | 22 |
| PACIFIC MADRONE (ARME3) | 5 | 31 |
| JEFFREY PINE (PIJE) | 13 | 27 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 100 |
| WHITE FIR (ABCO) | 1 | 31 |
| DOUGLAS-FIR (PSME) | 1 | 72 |
| TANOAK (LIDE2) | 5 | 54 |
| PACIFIC YEW (TABR) | 2 | 36 |
| SUGAR PINE (PILA) | 1 | 45 |
| INCENSE CEDAR (LIDE3) | 1 | 45 |
| JEFFREY PINE (PIJE) | 1 | 22 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 5 | 81 |
| HUCKLEBERRY OAK (QUVA) | 23 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 31 |
| WILD ROSE (ROGY) | 1 | 45 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 27 |
| TUMBLEWEED (AMAL) | 1 | 31 |
| PINEMAT MANZANITA (ARNE2) | 2 | 22 |
| CREEPING OREGON-GRAPE (BERE) | 1 | 22 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 1 | 54 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 72 |
| TWINFLOWER (LIBOL) | 2 | 36 |
| BEARGRASS (XETE) | 3 | 77 |
| STARFLOWER (TRLA3) | 1 | 45 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 22 |
| WESTERN MODESTY (WHMO) | 2 | 54 |
| IRIS (IRI) | 1 | 63 |
| SWORDFERN (POMU1) | 1 | 31 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 27 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 36 |

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Table 31. Environment and timber summary for the Port-Orford cedar-western white pine/huckleberry oak type (CHLA-PIMO3/QUVA) N=9.

| RANGER DISTRICT | GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2964 | 1500 | 3840 | 316 |
| SLOPE (%) | 32 | 5 | 50 | 7 |
| ASPECT (deg) | EAST, WEST | | | |
| SOLAR RADIATION INDEX * | .450 | .406 | .489 | .022 |
| SURFACE ROCK | 13 | 0 | 18 | 4 |
| STAND AGE | 421 | 288 | 700 | 44 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5170 | 5050 | 6309 | 1201 |
| BASAL AREA ($ft^2$) | 257 | 213 | 306 | 38 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 58 | 0 | 519 | 58 |
| BASAL AREA ($ft^2$) | 3 | 0 | 26 | 3 |
| SITE CLASS | 3-4 | | | |
| SITE INDEX | 100-125 | | | |
| STAND DENSITY INDEX | 404 | 317 | 515 | 62 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Found in lower one-third slope positions with linear, undulating, and concave horizontal micro-relief and linear, undulating vertical micro-relief.

Table 32. Soils summary for the Port-Orford cedar-western white pine/huckleberry oak type (CHLA-PIMO3/QUVA) N=9.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 27 | 15 | >40 |
| AWC (inches) | 1.8 | 1.1 | 2.4 |
| PARENT ROCK | serpentine, peridotite | | |
| SOIL FAMILY | Weitchpec, Goulding V., Walnett | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 8 |
| COARSE FRAGMENT (%) | 62 | 56 | 90 |
| pH | 6.5 | 5.9 | 7.1 |
| COLOR | dark brown, very dark grayish brown | | |
| TEXTURE | xgl, vgl, gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 55 | 40 | 80 |
| pH | 6.9 | 6.1 | 7.7 |
| COLOR | dark yellowish brown, grayish brown | | |
| TEXTURE | vgl, xstl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are primarily moderately deep and occasionally shallow.

Table 33. Vegetation summary for the Port-Orford cedar-western white pine/huckleberry oak type (CHLA-PIMO3/QUVA) N=9.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 94 | 85 | 99 | 2 |
| GRASS COVER | 5 | 0 | 12 | 3 |
| HERB COVER | 15 | 5 | 40 | 4 |
| SHRUB COVER | 66 | 25 | 90 | 9 |
| TREE COVER | 55 | 35 | 70 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 28 | 100 |
| DOUGLAS-FIR (PSME) | 15 | 100 |
| WESTERN WHITE PINE (PIMO3) | 5 | 100 |
| PACIFIC MADRONE (ARME3) | 2 | 55 |
| CALIFORNIA BAY (UMCA1) | 4 | 22 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 88 |
| WHITE FIR (ABCO) | 1 | 44 |
| DOUGLAS-FIR (PSME) | 2 | 77 |
| TANOAK (LIDE2) | 9 | 22 |
| PACIFIC YEW (TABR) | 1 | 22 |
| WESTERN WHITE PINE (PIMO3) | 1 | 100 |
| CALIFORNIA BAY (UMCA1) | 7 | 55 |
| PACIFIC MADRONE (ARME3) | 1 | 33 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 6 | 88 |
| HUCKLEBERRY OAK (QUVA) | 37 | 100 |
| WILD ROSE (ROGY) | 1 | 33 |
| DWARF OREGON-GRAPE (BENE1) | 4 | 33 |
| WESTERN AZALEA (RHOC) | 12 | 55 |
| PACIFIC RHODODENDRON (RHMA) | 16 | 33 |
| TUMBLEWEED (AMAL) | 3 | 44 |
| OCEANSPRAY (HODI) | 5 | 33 |
| PYGMY HOLLY-GRAPE (BEPU) | 1 | 22 |
| BOXLEAF SILKTASSEL (GABU2) | 1 | 55 |
| DWARF TANBARK (LIDEE) | 15 | 55 |
| CREEPING OREGON-GRAPE (BERE) | 1 | 22 |
| POISON OAK (RHDI) | 3 | 22 |
| EVERGREEN HUCKLEBERRY (VAOV) | 4 | 22 |
| WHITELEAF MANZANITA (ARVI3) | 1 | 22 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 2 | 55 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 22 |
| TWINFLOWER (LIBOL) | 3 | 66 |
| BEARGRASS (XETE) | 3 | 88 |
| STARFLOWER (TRLA3) | 1 | 22 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 22 |
| WESTERN MODESTY (WHMO) | 5 | 66 |
| IRIS (IRI) | 1 | 100 |
| SWORDFERN (POMU1) | 2 | 66 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 22 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 33 |
| REDWOOD IVY (VAPL) | 1 | 22 |
| FAIRY-SLIPPER (CABU2) | 1 | 55 |
| OREGON TRILLIUM (TRRI) | 1 | 44 |
| FRITILLARY (FRI) | 2 | 22 |
| STONECROP (SED) | 1 | 22 |
| SEDGE (CAR1) | 4 | 33 |
| CALIFORNIA FESCUE (FECA) | 14 | 22 |

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Table 31. Environment and timber summary for the Port-Orford cedar-incense cedar-white alder type (CHLA-LIDE3-ALRH) N=2.

| RANGER DISTRICT | UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3295 | 3220 | 3370 | 75 |
| SLOPE (%) | 38 | 25 | 50 | 12 |
| ASPECT (deg) | SOUTHEAST | | | |
| SOLAR RADIATION INDEX * | .542 | .527 | .556 | .020 |
| SURFACE ROCK | 4 | 2 | 5 | 1 |
| STAND AGE | 215 | 207 | 224 | 9 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8280 | 6375 | 10,185 | 1905 |
| BASAL AREA ($ft^2$) | 253 | 213 | 293 | 40 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 442 | 0 | 883 | 442 |
| BASAL AREA ($ft^2$) | 26 | 0 | 53 | 26 |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 459 | 440 | 479 | 20 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
Found in lower and middle one-third slopes with undulating and linear horizontal and vertical micro-reliefs.

Table 32. Soils summary for the Port-Orford cedar-incense cedar-white alder type (CHLA-LIDE3-ALRH) N=2.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 35 | >40 |
| AWC (inches) | 3.3 | 2.7 | 3.9 |
| PARENT ROCK | schist, mixed | | |
| SOIL FAMILY | Forgay | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 6 | 6 |
| COARSE FRAGMENT (%) | 40 | 40 | 40 |
| pH | 6.2 | 5.5 | 7.0 |
| COLOR | very dark grayish brown | | |
| TEXTURE | vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 41 | 40 | 42 |
| pH | 7.1 | 6.7 | 7.4 |
| COLOR | dark grayish brown | | |
| TEXTURE | vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.
Soils are deep and moderately deep.

Table 33. Vegetation summary for the Port-Orford cedar-incense cedar-white alder type (CHLA-LIDE3-ALRH) N=2.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 98 | 98 | 0 |
| GRASS COVER | 1 | 1 | 1 | 0 |
| HERB COVER | 3 | 2 | 4 | 1 |
| SHRUB COVER | 2 | 1 | 2 | <1 |
| TREE COVER | 98 | 98 | 98 | 0 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 37 | 100 |
| DOUGLAS-FIR (PSME) | 30 | 100 |
| INCENSE CEDAR (LIDE3) | 8 | 100 |
| PACIFIC DOGWOOD (CONU2) | 1 | 50 |
| BIGLEAF MAPLE (ACMA) | 4 | 100 |
| WHITE ALDER (ALRH) | 3 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 1 | 100 |
| WHITE FIR (ABCO) | 1 | 50 |
| DOUGLAS-FIR (PSME) | 5 | 50 |
| TANOAK (LIDE2) | 1 | 50 |
| INCENSE CEDAR (LIDE3) | 1 | 50 |
| CANYON LIVE OAK (QUCH2) | 1 | 50 |
| WHITE ALDER (ALRH) | 1 | 50 |
| BIGLEAF MAPLE (ACMA) | 1 | 50 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 1 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 100 |
| WILD ROSE (ROGY) | 1 | 50 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 50 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 1 | 50 |
| TWINFLOWER (LIBOL) | 1 | 50 |
| STARFLOWER (TRLA3) | 1 | 50 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 50 |
| VANILLALEAF (ACTR) | 1 | 100 |
| WESTERN MODESTY (WHMO) | 1 | 50 |
| SWORDFERN (POMU1) | 1 | 50 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 50 |
| HAWKWEED (HIAL) | 1 | 50 |
| TRAILPLANT (ADBI) | 1 | 50 |
| STARRY SOLOMON'S SEAL (SMST) | 1 | 50 |
| MOUNTAIN DOGBANE (APPU) | 1 | 50 |
| VETCH (VIC3) | 1 | 50 |
| COMMON HORSETAIL (EQAR) | 2 | 50 |
| LUPINE (LUP2) | 1 | 50 |
| WESTERN FESCUE (FEOC1) | 1 | 50 |

Appendix I. List of plant species identified in the Port-Orford cedar series with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Chamaecyparis lawsoniana | 100% | 173 | 5 | 90 | 85 | 35.3 | 18.4 | 1.4 | 2.7 |
| Pseudotsuga menziesii | 97% | 168 | 1 | 85 | 84 | 26.5 | 16.0 | 1.2 | 2.4 |
| Abies concolor | 52% | 91 | 1 | 55 | 54 | 16.5 | 11.1 | 1.2 | 2.3 |
| Pinus lambertiana | 42% | 74 | 1 | 30 | 29 | 6.4 | 5.6 | .6 | 1.3 |
| Castanopsis chrysophylla | 20% | 35 | 1 | 40 | 39 | 7.6 | 8.9 | 1.5 | 3.1 |
| Libocedrus decurrens | 18% | 32 | 1 | 30 | 29 | 6.8 | 7.2 | 1.3 | 2.6 |
| Lithocarpus densiflora | 17% | 31 | 1 | 55 | 54 | 10.4 | 11.9 | 2.1 | 4.4 |
| Pinus monticola | 16% | 28 | 1 | 20 | 19 | 6.6 | 6.2 | 1.2 | 2.4 |
| Arbutus menziesii | 14% | 25 | 1 | 10 | 9 | 3.0 | 2.4 | .5 | 1.0 |
| Abies magnifica shastensis | 13% | 24 | 1 | 50 | 49 | 12.3 | 11.9 | 2.4 | 5.0 |
| Picea breweriana | 10% | 19 | 1 | 15 | 14 | 2.6 | 3.4 | .8 | 1.6 |
| Taxus brevifolia | 10% | 19 | 1 | 10 | 9 | 3.2 | 2.3 | .5 | 1.1 |
| Pinus jeffreyi | 8% | 14 | 1 | 25 | 24 | 6.6 | 9.2 | 2.5 | 5.3 |
| Cornus nuttallii | 6% | 11 | 1 | 10 | 9 | 2.5 | 2.7 | .8 | 1.8 |
| Acer macrophyllum | 4% | 7 | 2 | 5 | 3 | 3.4 | 1.3 | .5 | 1.2 |
| Alnus oregona | 3% | 6 | 1 | 10 | 9 | 5.0 | 4.1 | 1.7 | 4.3 |
| Alnus rhombifolia | 2% | 5 | 2 | 5 | 3 | 3.2 | 1.3 | .6 | 1.6 |
| Umbellularia californica | 1% | 3 | 2 | 5 | 3 | 3.3 | 1.5 | .9 | 3.8 |
| Quercus chrysolepis | 0% | 1 | 4 | 4 | 0 | 4.0 | .0 | .0 | .0 |
| Tsuga heterophylla | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Tsuga mertensiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Chamaecyparis lawsoniana | 96% | 167 | 1 | 40 | 39 | 3.6 | 4.8 | .4 | .7 |
| Abies concolor | 59% | 103 | 1 | 10 | 9 | 2.4 | 1.8 | .2 | .4 |
| Pseudotsuga menziesii | 52% | 90 | 1 | 15 | 14 | 1.7 | 1.7 | .2 | .4 |
| Lithocarpus densiflorus | 35% | 61 | 1 | 15 | 14 | 3.7 | 3.4 | .4 | .9 |
| Castanopsis chrysophylla | 23% | 41 | 1 | 25 | 24 | 3.1 | 4.8 | .8 | 1.5 |
| Taxus brevifolia | 22% | 39 | 1 | 5 | 4 | 1.7 | 1.1 | .2 | .3 |
| Pinus lambertiana | 20% | 36 | 1 | 4 | 3 | 1.2 | .6 | .1 | .2 |
| Abies magnifica shastensis | 12% | 22 | 1 | 10 | 9 | 2.0 | 2.4 | .5 | 1.1 |
| Libocedrus decurrens | 12% | 21 | 1 | 2 | 1 | 1.1 | .4 | .1 | .2 |
| Pinus monticola | 10% | 18 | 1 | 3 | 2 | 1.1 | .5 | .1 | .2 |
| Cornus nuttallii | 6% | 11 | 1 | 10 | 9 | 2.9 | 3.6 | 1.1 | 2.4 |
| Picea breweriana | 6% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Umbellularia californica | 5% | 10 | 1 | 15 | 14 | 4.6 | 4.8 | 1.5 | 3.4 |
| Arbutus menziesii | 4% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus jeffreyi | 4% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Quercus chrysolepis | 2% | 5 | 1 | 3 | 2 | 1.4 | .9 | .4 | 1.1 |
| Alnus rhombifolia | 1% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Rhamnus purshiana | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Acer macrophyllum | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Alnus oregona | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Sambucus caerulea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tsuga mertensiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Vaccinium parvifolium | 60% | 105 | 1 | 30 | 29 | 3.8 | 4.8 | .5 | .9 |
| Quercus vaccinifolia | 57% | 99 | 1 | 80 | 79 | 13.6 | 18.5 | 1.9 | 3.7 |
| Rubus ursinus | 54% | 95 | 1 | 5 | 4 | 1.3 | .7 | .1 | .1 |
| Quercus sadleriana | 49% | 86 | 1 | 80 | 79 | 10.8 | 16.0 | 1.7 | 3.4 |
| Rosa gymnocarpa | 45% | 79 | 1 | 5 | 4 | 1.4 | .9 | .1 | .2 |
| Berberis nervosa | 44% | 77 | 1 | 25 | 24 | 3.8 | 4.5 | .5 | 1.0 |
| Rhododendron occidentale | 30% | 53 | 1 | 85 | 84 | 16.1 | 18.7 | 2.6 | 5.1 |
| Gaultheria shallon | 26% | 46 | 1 | 80 | 79 | 36.3 | 25.4 | 3.7 | 7.6 |
| Rhododendron macrophyllum | 21% | 38 | 1 | 80 | 79 | 19.1 | 22.7 | 3.7 | 7.5 |
| Amelanchier alnifolia | 21% | 37 | 1 | 8 | 7 | 1.6 | 1.5 | .2 | .5 |
| Gaultheria ovatifolia | 20% | 35 | 1 | 30 | 29 | 3.5 | 5.2 | .9 | 1.8 |
| Corylus cornuta californica | 18% | 32 | 1 | 25 | 24 | 3.8 | 5.2 | .9 | 1.9 |
| Rubus parviflorus | 16% | 29 | 1 | 10 | 9 | 2.4 | 2.3 | .4 | .9 |
| Vaccinium membranaceum | 16% | 28 | 1 | 35 | 34 | 7.9 | 10.8 | 2.0 | 4.2 |
| Arctostaphylos nevadensis | 13% | 23 | 1 | 25 | 24 | 4.2 | 6.9 | 1.4 | 3.0 |
| Paxistima myrsinites | 13% | 23 | 1 | 25 | 24 | 2.2 | 5.0 | 1.0 | 2.2 |

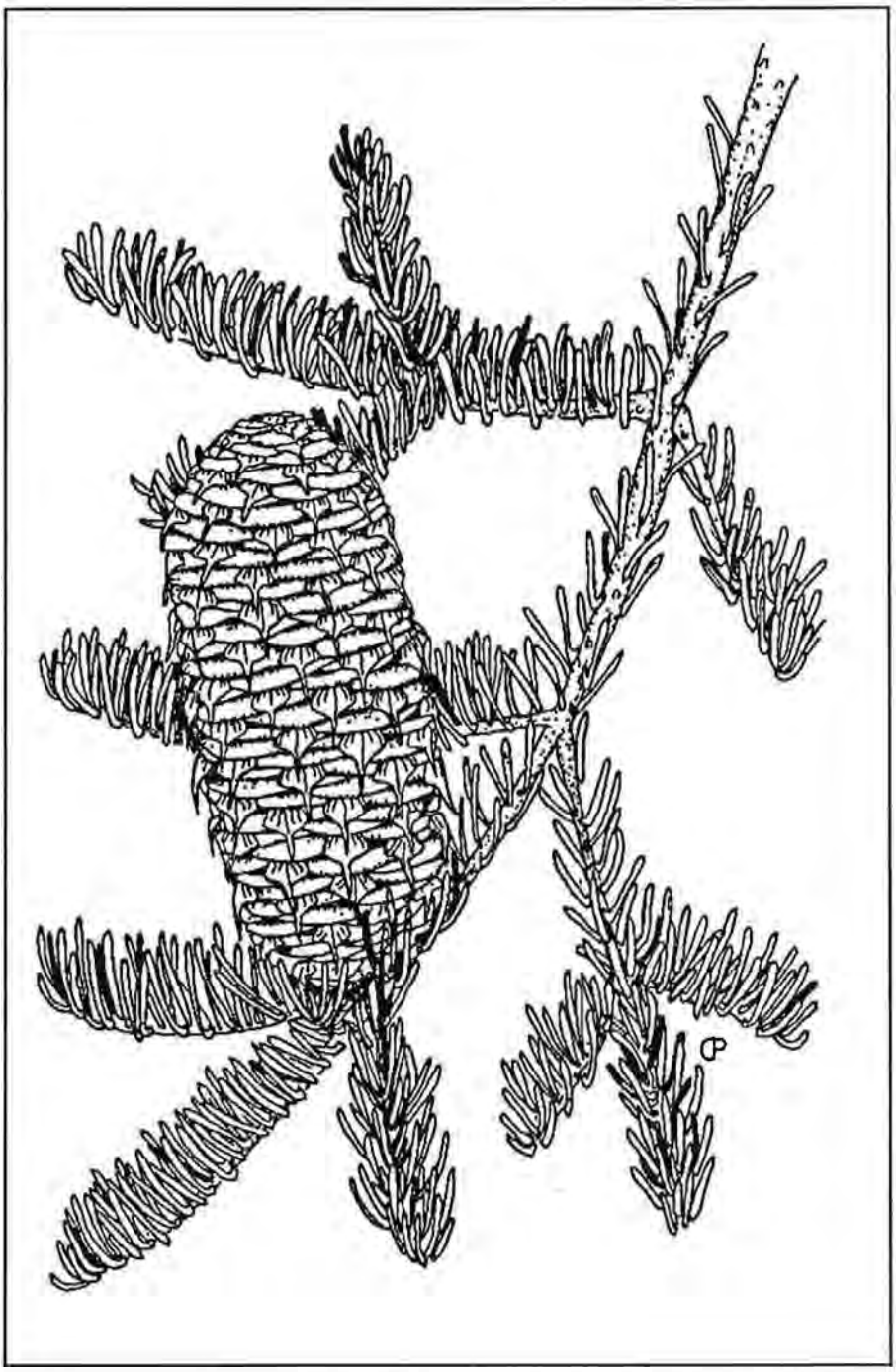
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Alnus sinuata | 9% | 17 | 1 | 20 | 19 | 5.2 | 5.4 | 1.3 | 2.8 |
| Symphoricarpos mollis | 9% | 17 | 1 | 2 | 1 | 1.1 | .2 | .1 | .1 |
| Holodiscus discolor | 8% | 14 | 1 | 8 | 7 | 2.2 | 2.2 | .6 | 1.3 |
| Berberis pumila | 6% | 11 | 1 | 2 | 1 | 1.4 | .5 | .2 | .3 |
| Rosa sp. | 6% | 11 | 1 | 5 | 4 | 1.5 | 1.2 | .4 | .8 |
| Acer glabrum torreyi | 5% | 9 | 1 | 5 | 4 | 1.8 | 1.4 | .5 | 1.1 |
| Garrya buxifolia | 5% | 9 | 1 | 2 | 1 | 1.3 | .5 | .2 | .4 |
| Lithocarpus densiflorus ech. | 5% | 9 | 1 | 35 | 34 | 9.2 | 10.8 | 3.6 | 8.3 |
| Berberis repens | 4% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rhamnus californica | 4% | 7 | 1 | 5 | 4 | 1.9 | 1.5 | .6 | 1.4 |
| Acer circinatum | 3% | 6 | 1 | 80 | 79 | 15.2 | 31.8 | 13.0 | 33.3 |
| Arctostaphylos patula | 3% | 6 | 1 | 5 | 4 | 2.8 | 1.6 | .7 | 1.7 |
| Ceanothus prostratus | 3% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Prunus emarginata | 3% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Rubus leucodermis | 3% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Garrya fremontii | 2% | 5 | 1 | 3 | 2 | 1.8 | 1.1 | .5 | 1.4 |
| Salix scouleriana | 2% | 5 | 1 | 4 | 3 | 1.8 | 1.3 | .6 | 1.6 |
| Cornus stolonifera | 2% | 4 | 1 | 4 | 3 | 2.8 | 1.5 | .8 | 2.4 |
| Rhus diversiloba | 2% | 4 | 1 | 3 | 2 | 2.3 | 1.0 | .5 | 1.5 |
| Sorbus californica | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vaccinium ovatum | 2% | 4 | 3 | 5 | 2 | 4.5 | 1.0 | .5 | 1.6 |
| Arctostaphylos viscida | 1% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Physocarpus capitatus | 1% | 3 | 1 | 3 | 2 | 2.0 | 1.0 | .6 | 2.5 |
| Ribes cereum | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Salix sp. | 1% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Ribes sanguineum | 1% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Ribes sp. | 1% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Ribes velutinum glandulifera | 1% | 2 | 1 | 7 | 6 | 4.0 | 4.2 | 3.0 | 38.1 |
| Spiraea douglasii | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus velutinus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lonicera ciliosa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes lobbii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus laciniatus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilax californica | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Spiraea densiflora | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Vaccinium scoparium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Chimaphila umbellata occide | 70% | 122 | 1 | 15 | 14 | 2.1 | 2.1 | .2 | .4 |
| Goodyera oblongifolia | 63% | 110 | 1 | 2 | 1 | 1.0 | .1 | .0 | .0 |
| Linnaea borealis longiflora | 54% | 94 | 1 | 60 | 59 | 6.5 | 9.5 | 1.0 | 1.9 |
| Xerophyllum tenax | 53% | 92 | 1 | 12 | 11 | 2.8 | 2.5 | .3 | .5 |
| Trientalis latifolia | 48% | 84 | 1 | 3 | 2 | 1.3 | .5 | .1 | .1 |
| Trillium ovatum | 41% | 71 | 1 | 2 | 1 | 1.0 | .2 | .0 | .0 |
| Disporum hookeri | 39% | 69 | 1 | 15 | 14 | 1.4 | 1.8 | .2 | .4 |
| Achlys triphylla | 34% | 59 | 1 | 65 | 64 | 5.6 | 11.7 | 1.5 | 3.0 |
| Pyrola picta | 30% | 53 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clintonia uniflora | 28% | 50 | 1 | 20 | 19 | 3.6 | 4.9 | .7 | 1.4 |
| Whipplea modesta | 27% | 48 | 1 | 20 | 19 | 2.3 | 2.9 | .4 | .9 |
| Iris sp. | 27% | 48 | 1 | 2 | 1 | 1.1 | .4 | .1 | .1 |
| Polystichum munitum | 27% | 48 | 1 | 3 | 2 | 1.3 | .5 | .1 | .2 |
| Pteridium aquilinum lanug. | 26% | 46 | 1 | 5 | 4 | 1.4 | .9 | .1 | .3 |
| Anemone deltoidea | 22% | 39 | 1 | 4 | 3 | 1.3 | .6 | .1 | .2 |
| Pyrola secunda | 20% | 36 | 1 | 3 | 2 | 1.2 | .6 | .1 | .2 |
| Vancouveria hexandra | 20% | 36 | 1 | 50 | 49 | 3.9 | 9.0 | 1.5 | 3.0 |
| Smilacina racemosa amplex. | 19% | 33 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Chimaphila menziesii | 16% | 28 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium albiflorum | 13% | 24 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Adenocaulon bicolor | 13% | 23 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Pyrola picta dentata | 13% | 23 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sempervirens | 12% | 22 | 1 | 3 | 2 | 1.2 | .5 | .1 | .2 |
| Athyrium filix-femina calif. | 10% | 18 | 1 | 15 | 14 | 2.3 | 3.3 | .8 | 1.7 |
| Vancouveria planipetala | 10% | 18 | 1 | 4 | 3 | 1.4 | .8 | .2 | .4 |
| Angelica arguta | 9% | 17 | 1 | 5 | 4 | 1.4 | 1.0 | .2 | .5 |
| Arnica discoidea | 9% | 17 | 1 | 4 | 3 | 1.4 | .8 | .2 | .4 |
| Smilacina stellata | 9% | 16 | 1 | 10 | 9 | 2.3 | 3.0 | .8 | 1.6 |
| Asarum caudatum | 8% | 14 | 1 | 7 | 6 | 1.7 | 1.6 | .4 | .9 |
| Lilium washingtonianum purp. | 8% | 14 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Calypso bulbosa | 7% | 13 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Campanula prenanthoides | 7% | 13 | 1 | 4 | 3 | 1.4 | .9 | .2 | .5 |
| Senecio triangularis | 7% | 13 | 1 | 3 | 2 | 1.2 | .6 | .2 | .3 |
| Listera caurina | 6% | 12 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola asarifolia purpurea | 6% | 12 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Adiantum pedatum aleuticum | 6% | 11 | 1 | 5 | 4 | 1.5 | 1.2 | .4 | .8 |
| Galium triflorum | 6% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 6% | 11 | 1 | 40 | 39 | 4.5 | 11.8 | 3.5 | 7.9 |
| Corallorhiza sp. | 5% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Listera convallarioides | 5% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tiarella unifoliata | 5% | 10 | 1 | 2 | 1 | 1.1 | .3 | .1 | .2 |
| Corallorhiza striata | 5% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apocynum pumilum | 4% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrum californicum | 4% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola glabella | 4% | 8 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Habenaria sp. | 4% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 4% | 7 | 1 | 4 | 3 | 1.9 | 1.2 | .5 | 1.1 |
| Lupinus sp. | 4% | 7 | 1 | 15 | 14 | 4.0 | 6.2 | 2.8 | 7.7 |
| Osmorhiza chilensis | 4% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stellaria jamesiana | 4% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium rivale | 4% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia sp. | 4% | 7 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Agastache urticifolia | 2% | 5 | 1 | 2 | 1 | 1.6 | .5 | .2 | .7 |
| Lilium sp. | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pedicularis racemosa | 2% | 5 | 1 | 6 | 5 | 2.2 | 2.2 | 1.0 | 2.7 |
| Streptopus amplexifolius | 2% | 5 | 1 | 2 | 1 | 1.2 | .4 | .2 | .6 |
| Viola sp. | 2% | 5 | 1 | 4 | 3 | 1.8 | 1.3 | .6 | 1.6 |
| Blechnum spicant | 2% | 4 | 1 | 8 | 7 | 3.8 | 3.4 | 1.7 | 5.4 |
| Anemone quinquefolia oregana | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aquilegia formosa | 2% | 4 | 1 | 2 | 1 | 1.3 | .5 | .3 | .8 |
| Boykinia major | 2% | 4 | 1 | 6 | 5 | 2.3 | 2.5 | 1.3 | 4.0 |
| Campanula scouleri | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Habenaria unalascensis | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hemitomes congestum | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium columbianum | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Mitella sp. | 2% | 4 | 1 | 3 | 2 | 1.8 | 1.0 | .5 | 1.5 |
| Arnica sp. | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus polymorphus | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Equisetum arvense | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Galium sp. | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Lilium wigginsii | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Listera sp. | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus crassifolius | 1% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Osmorhiza sp. | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon nemorosus | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Petasites palmatus | 1% | 3 | 1 | 30 | 29 | 18.7 | 15.5 | 9.0 | 38.5 |
| Phlox adsurgens | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium longipes | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Viola lobata | 1% | 3 | 1 | 5 | 4 | 2.3 | 2.3 | 1.3 | 5.7 |
| Actaea rubra arguta | 1% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Allotropa virgata | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica sp. | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apiastrum angustifolium | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apocynum sp. | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aster ledophyllus | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cypripedium californicum | 1% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Eburophyton austinae | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Fritillaria sp. | 1% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Galium aparine | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heuchera micrantha erubescens | 1% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Lotus sp. | 1% | 2 | 4 | 5 | 1 | 4.5 | .7 | .5 | 6.4 |
| Oxalis oregana | 1% | 2 | 2 | 3 | 1 | 2.5 | .7 | .5 | 6.4 |
| Penstemon deustus | 1% | 2 | 1 | 4 | 3 | 2.5 | 2.1 | 1.5 | 19.1 |
| Sarcodes sanguinea | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sedum sp. | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sidalcea malvaeflora | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stachys rigida lanata | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

**Grasses**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Carex sp. | 23% | 41 | 1 | 10 | 9 | 1.9 | 1.8 | .3 | .6 |
| Festuca occidentalis | 6% | 12 | 1 | 2 | 1 | 1.1 | .3 | .1 | .2 |
| Melica subulata | 4% | 8 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Bromus suksdorfii | 3% | 6 | 1 | 5 | 4 | 2.3 | 2.1 | .8 | 2.2 |
| Festuca californica | 3% | 6 | 2 | 25 | 23 | 6.5 | 9.2 | 3.8 | 9.7 |
| Bromus sp. | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Elymus glaucus | 2% | 5 | 1 | 3 | 2 | 1.4 | .9 | .4 | 1.1 |
| Festuca sp. | 2% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca subulata | 2% | 4 | 1 | 2 | 1 | 1.3 | .5 | .3 | .8 |
| Bromus marginatus | 1% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Bromus carinatus | 1% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Calamagrostis koelerioides | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hierochloe occidentalis | 1% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# RED FIR SERIES



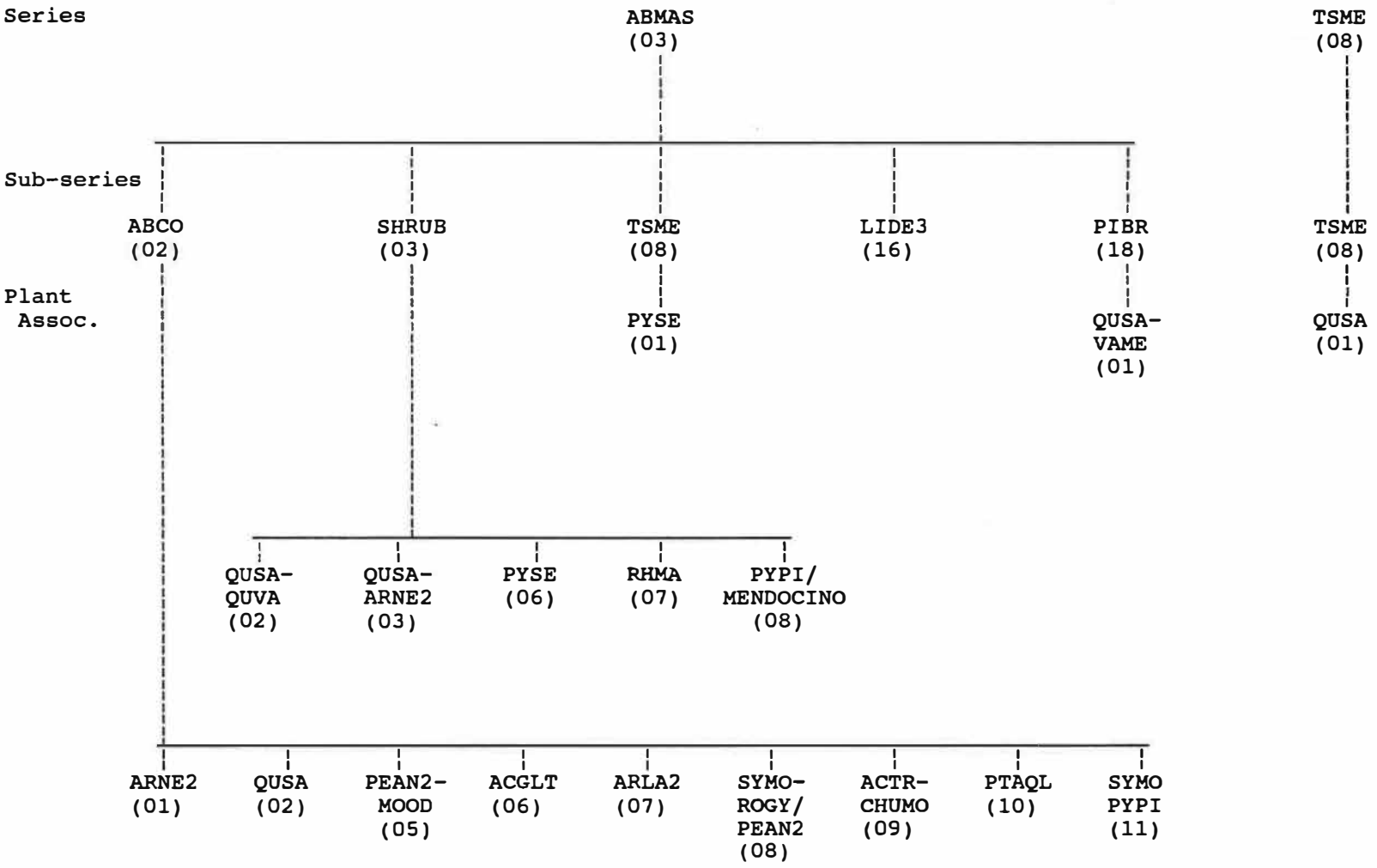



Figure 1. Dendrogram of plant associations within the red fir and mountain hemlock series.

Table 1. Confirmed locations of the red fir-white fir sub-series plant associations by National Forest and Ranger District.

| LOCATION | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ ARNE2 | ABMAS-ABCO/ QUSA | ABMAS-ABCO/ PEAN2-MOOD | ABMAS-ABCO/ ACGLT | ABMAS-ABCO/ ARLA2 | ABMAS-ABCO/ SYMO-ROGY/ PEAN2 |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | X | | | | |
| ORLEANS RD | | X | X | X | X | X |
| LOWER TRINITY RD | | X | | X | | X |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | | | | | |
| HAPPY CAMP RD | | X | | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | X | | | X |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | X | | | | | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| UPPER LAKE RD | | | | | | |
| COVELO RD | | | | | | |
| STONYFORD RD | | | | | | |
| CORNING RD | | | | | | |

Table 2. Comparison of environment and soil variables by plant association in the red fir-white fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS-ABCO/ARNE2 | ABMAS-ABCO/QUSA | ABMAS-ABCO/PEAN2-MOOD | ABMAS-ABCO/ACGLT | ABMAS-ABCO/ARLA2 | ABMAS-ABCO/SYMO-ROGY/PEAN2 |
| NUMBER OF PLOTS | 4 | 13 | 6 | 4 | 3 | 17 |
| **ENVIRONMENT:** ELEVATION (ft) | 4975 | 5021 | 5790 | 5442 | 5237 | 5658 |
| ASPECT (deg) | N. EAST | N. EAST WEST | N. WEST | WEST | NORTH | S. WEST |
| SLOPE (%) | 17 | 34 | 40 | 39 | 53 | 32 |
| RADIATION INDEX | .462 | .439 | .446 | .515 | .298 | .441 |
| SURFACE ROCK(%) | 3 | 4 | 5 | 2 | 5 | 2 |
| **SOILS:** SOIL DEPTH (in) | 29 | 31 | 25 | 37 | 31 | 33 |
| AWC (in) | 2.7 | 3.0 | 2.1 | 2.7 | 3.0 | 3.1 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 5 | 6 | 6 | 15 | 6 | 10 |
| CO. FRAG. (%) | 39 | 35 | 30 | 23 | 36 | 31 |
| COLOR | dark brown | dark brown, dark yellowish brown | dark brown | dark brown, dark reddish brown, very dark brown | dark brown | dark brown, very dark brown, very dark grayish brown |
| TEXTURE | gl, kcl | gl, vgl | gl | gsl, vgsl | gl | gl, vgl, vkl, gsl |
| PARENT MATERIAL | schist | granite sandstone mafic | mafic phyllite | granite | mafic schist | mafic granite greenstone schist |
| SOIL FAMILY | | | | | | |

Table 3. Comparison of stand structure variables by plant association in the red fir-white fir sub-series for stands ≥ 150 years.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ARNE2 | ABMAS-ABCO/QUSA | ABMAS-ABCO/PEAN2-MOOD | ABMAS-ABCO/ACGLT | ABMAS-ABCO/ARLA2 | ABMAS-ABCO/SYMO-ROGY/PEAN2 |
| STAND AGE | 284 | 251 | 211 | 184 | 327 | 188 |
| NUMBER OF PLOTS | 4 | 11 | 3 | 4 | 2 | 11 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 10298 | 11222 | 15521 | 9531 | 11579 | 10509 |
| BASAL AREA ($ft^2$) | 280 | 312 | 447 | 237 | 306 | 305 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 | 0 | 0 |
| SITE CLASS | 2-3 | 1-3 | 1-2 | 1-2 | 1-2 | 1-2 |
| SITE INDEX | 125-150 | 125-174 | 150-175 | 150-175 | 150-175 | 150-175 |
| STAND DENSITY INDEX | 345 | 440 | 599 | 262 | 449 | 459 |

Table 4. Comparison of vegetation variables by plant association in the red fir-white fir sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ ARNE2 | ABMAS-ABCO/ QUSA | ABMAS-ABCO/ PEAN2-MOOD | ABMAS-ABCO/ ACGLT | ABMAS-ABCO/ ARLA2 | ABMAS-ABCO/ SYMO-ROGY/ PEAN2 |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 96 | 94 | 93 | 93 | 96 | 90 |
| GRASS COVER | 0 | <1 | 2 | 1 | 2 | 1 |
| FORB COVER | 13 | 17 | 14 | 13 | 48 | 13 |
| SHRUB COVER | 43 | 34 | 27 | 36 | 8 | 6 |
| TREE COVER | 69 | 78 | 73 | 74 | 75 | 85 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| RED FIR | 20 (100) | 40 (100) | 33 (100) | 34 (100) | 48 (100) | 49 (100) |
| WHITE FIR | 19 (100) | 24 (92) | 38 (100) | 41 (100) | 25 (100) | 35 (100) |
| DOUGLAS-FIR | 21 (100) | 14 (76) | | 3 (25) | 3 (66) | 4 (29) |
| SUGAR PINE | 19 (100) | 10 (53) | | | | 2 (5) |
| BREWER'S SPRUCE | | 3 (7) | | | | |
| INCENSE CEDAR | | 8 (30) | 4 (50) | 3 (25) | 1 (33) | 3 (11) |
| WESTERN WHITE PINE | | 5 (7) | | | | |
| MOUNTAIN HEMLOCK | | | | | | |
| CHINQUAPIN | 2 (25) | | | | | 1 (5) |
| JEFFREY PINE | | 2 (7) | | | | |

Table 4. Comparison of vegetation variables by plant association in the red fir-white fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ ARNE2 | ABMAS-ABCO/ QUSA | ABMAS-ABCO/ PEAN2-MOOD | ABMAS-ABCO/ ACGLT | ABMAS-ABCO/ ARLA2 | ABMAS-ABCO/ SYMO-ROGY/ PEAN2 |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| RED FIR | 16 (100) | 4 (92) | 3 (83) | 4 (100) | 2 (100) | 3 (94) |
| WHITE FIR | 9 (100) | 2 (100) | 5 (100) | 4 (100) | 6 (100) | 4 (100) |
| SUGAR PINE | 1 (75) | 1 (7) | | | | 1 (5) |
| DOUGLAS-FIR | 1 (50) | | 1 (16) | | 1 (66) | 1 (5) |
| INCENSE CEDAR | | 1 (5) | 1 (50) | 1 (25) | 1 (33) | 1 (11) |
| BREWER'S SPRUCE | | | | | | |
| MOUNTAIN HEMLOCK | | 1 (7) | | | | |
| CHINQUAPIN | | 2 (7) | | | | |
| WESTERN WHITE PINE | | | | | | |
| PACIFIC DOGWOOD | | | | | | 1 (5) |

Table Comparison of vegetation variables by plant association in the red fir-white fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ ARNE2 | ABMAS-ABCO/ QUSA | ABMAS-ABCO/ PEAN2-MOOD | ABMAS-ABCO/ ACGLT | ABMAS-ABCO/ ARLA2 | ABMAS-ABCO/ SYMO-ROGY/ PEAN2 |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| SADLER OAK | | 27 (100) | | 5 (75) | 5 (33) | 2 (5) |
| CREEPING SNOWBERRY | | 1 (61) | 10 (100) | 4 (75) | 2 (100) | 3 (94) |
| WILD ROSE | | 3 (63) | 4 (83) | 5 (100) | 2 (100) | 2 (82) |
| PINEMAT MANZANITA | 43 (100) | 1 (7) | | | | 2 (5) |
| THIN-LEAFED HUCKLEBERRY | | 2 (7) | | | | |
| MOUNTAIN MAPLE | | 3 (7) | 1 (50) | 12 (100) | 1 (33) | 1 (29) |
| THIMBLEBERRY | | | 1 (83) | 4 (100) | 3 (66) | 1 (41) |
| HUCKLEBERRY OAK | | 1 (7) | | 1 (25) | | 1 (17) |
| LOBB'S GOOSEBERRY | | 1 (7) | 1 (66) | 2 (25) | 1 (33) | 1 (52) |
| DWARF OREGON-GRAPE | | 1 (23) | | 1 (25) | 1 (33) | 1 (11) |
| DESERT GOOSEBERRY | | | 5 (16) | 2 (50) | | 1 (5) |
| SERVICEBERRY | | 1 (7) | 2 (33) | 1 (25) | | 1 (11) |
| TRAILING BLACKBERRY | | 2 (30) | 1 (16) | 1 (25) | | 1 (5) |
| STICKY CURRANT | | | 14 (50) | 1 (50) | | 1 (23) |
| GREENLEAF MANZANITA | | | | | | 1 (5) |
| GOOSEBERRY | | | 2 (50) | | | 1 (31) |
| OREGON BOXWOOD | | 1 (7) | | | | |
| SLENDER SALAL | | | | | | |
| BITTER CHERRY | | | 9 (33) | | | 5 (21) |
| PYGMY HOLLY-GRAPE | | | | 1 (20) | | |
| HAZELNUT | | 2 (7) | | 2 (25) | 4 (33) | 1 (5) |
| SNOWBRUSH | | | 1 (16) | | | 1 (5) |
| OCEANSPRAY | | | 1 (16) | | | 1 (5) |
| MOUNTAIN ASH | | | | | | |
| PACIFIC RHODODENDRON | | | | | | |

Table 4. Comparison of vegetation variables by plant association in the red fir-white fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ARNE2 | ABMAS-ABCO/QUSA | ABMAS-ABCO/PEAN2-MOOD | ABMAS-ABCO/ACGLT | ABMAS-ABCO/ARLA2 | ABMAS-ABCO/SYMO-ROGY/MOOD |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| WHITE-VEINED WINTERGREEN | 1 (25) | 1 (92) | 1 (100) | 1 (75) | 1 (100) | 1 (88) |
| PRINCE'S PINE | 4 (75) | 7 (92) | 1 (66) | 5 (50) | 2 (100) | 3 (88) |
| ONE-SIDED WINTERGREEN | | 1 (84) | 1 (33) | 5 (25) | 1 (33) | 2 (58) |
| LITTLE PRINCE'S PINE | 12 (25) | 1 (30) | 1 (16) | 1 (75) | 1 (33) | 1 (58) |
| HAWKWEED | | 1 (30) | 1 (83) | 1 (75) | 1 (66) | 1 (52) |
| THREE-LEAVED ANEMONE | | 1 (30) | 2 (50) | 3 (50) | 1 (66) | 2 (64) |
| SISKIYOU PENSTEMON | | 1 (23) | 3 (100) | 2 (25) | 2 (33) | 2 (94) |
| RATTLESNAKE PLANTAIN | | 1 (38) | 1 (16) | | | 1 (5) |
| BRACKENFERN | | 2 (15) | | 5 (25) | | 1 (23) |
| VANILLALEAF | | 2 (38) | 1 (16) | | 2 (33) | 2 (35) |
| FALSE SOLOMON'S SEAL | | 1 (15) | 1 (16) | 1 (25) | 1 (33) | 1 (29) |
| SMALL BEDSTRAW | | 1 (15) | 2 (66) | 1 (75) | 1 (33) | 1 (29) |
| STICKY STARWORT | | | | 1 (25) | 1 (33) | 1 (5) |
| SHELTON'S VIOLET | | | 1 (33) | 2 (50) | | 1 (41) |
| TRAILPLANT | | 1 (30) | 2 (33) | 1 (25) | 2 (33) | 1 (47) |
| MOUNTAIN DOGBANE | | | 1 (33) | 1 (25) | | 1 (17) |
| HOOKER'S FAIRYBELL | | 1 (15) | 1 (16) | 1 (25) | 1 (66) | 1 (11) |
| SWEET CICELY | | | 1 (100) | 1 (25) | 1 (33) | 1 (52) |
| STREAM VIOLET | | 1 (7) | 1 (50) | 1 (50) | 1 (100) | 1 (52) |
| BEARGRASS | 13 (50) | 2 (7) | | | | |
| QUEEN'S CUP | | 6 (15) | 2 (16) | | | 1 (11) |
| SPOTTED CORALROOT | | | | | 1 (33) | 1 (41) |
| WASHINGTON LILY | | 1 (15) | 1 (16) | | 1 (33) | 1 (23) |
| MOUNTAIN MONARDELLA | | | 3 (83) | 1 (25) | | 1 (17) |

| | | | | | | |
|---|---|---|---|---|---|---|
| STARRY SOLOMON'S PLUME | | | 1 (16) | | | 1 (35) |
| LUPINE | | | 2 (66) | | | |
| CORALROOT | | 1 (23) | | 1 (50) | 1 (33) | |
| STRIPED CORALROOT | | 1 (15) | | | | |
| WHITE TRILLIUM | | | 1 (16) | 1 (25) | | 1 (17) |
| WILD STRAWBERRY | | 5 (15) | 1 (16) | | | |
| STARFLOWER | | 1 (7) | 1 (16) | | 1 (33) | 1 (17) |
| TOOTHED WINTERGREEN | | | | | | |
| WOODLAND PENSTEMON | | | | | | |
| WHITE INSIDE-OUT FLOWER | | 1 (7) | | | 2 (33) | 1 (5) |
| KELLOGIA | | 1 (15) | | 1 (25) | | 1 (11) |
| SNOWPLANT | 1 (75) | | | | | |
| PINE VIOLET | | | 1 (50) | | | 1 (23) |
| SHARP-TOOTHED ANGELICA | | | 2 (33) | 1 (25) | | 2 (15) |
| RAYLESS ARNICA | | 4 (7) | | | | |
| IRIS | | 1 (7) | | | | |
| LEAFY LOUSEWORT | | 1 (7) | | | | |
| SWORDFERN | | 1 (15) | | | | |
| ARNICA | | | | | | 5 (5) |
| CALIFORNIA HAREBELL | | | | | 1 (33) | 1 (5) |
| TWINFLOWER | | 60 (7) | | | | |
| WINDFLOWER | | 1 (7) | | | | 1 (5) |
| BLUE WILDRYE | | | | 1 (50) | | 1 (5) |
| SEDGE | | 1 (7) | | 1 (20) | | |
| CALIFORNIA BROME | | | 2 (33) | | | 1 (11) |
| BEARDED FESCUE | | | 19 (33) | | 1 (33) | 1 (47) |
| ALASKA ONIONGRASS | | | 5 (16) | | | 1 (29) |
| LARGE MOUNTAIN BROME | | | 8 (16) | 1 (50) | 3 (66) | |
| FIRE REEDGRASS | | | 8 (16) | 1 (25) | | |
| WESTERN FESCUE | | | 1 (16) | | 1 (33) | 1 (5) |

Table 5. Confirmed locations of the red fir-white fir and red fir/shrub sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | | X | X | |
| ORLEANS RD | X | X | X | X | X | X |
| LOWER TRINITY RD | | X | X | | X | X |
| MAD RIVER RD | | X | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | | | X | X | |
| HAPPY CAMP RD | X | | X | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | X | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | X | | | | |
| BIG BAR RD | | | | | | X |
| **MENDOCINO NF** | | | | | | |
| UPPER LAKE RD | | X | X | | | X |
| COVELO RD | | | | | | |
| STONYFORD RD | | | X | | | |
| CORNING RD | | | | | | |

Table 6. Comparison of environment and soil variables by plant association in the red fir-white fir and red fir/shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| NUMBER OF PLOTS | 11 | 17 | 20 | 13 | 20 | 16 |
| **ENVIRONMENT:** ELEVATION (ft) | 5177 | 5378 | 5792 | 4708 | 4846 | 6156 |
| ASPECT (deg) | S. WEST N. EAST | N. EAST WEST | S.WEST N.WEST | SOUTH WEST | EAST WEST | NORTH EAST S. WEST |
| SLOPE (%) | 46 | 22 | 29 | 37 | 25 | 36 |
| RADIATION INDEX | .399 | .460 | .445 | .495 | .460 | .413 |
| SURFACE ROCK(%) | 2 | 1 | 2 | 6 | 6 | 2 |
| **SOILS:** SOIL DEPTH (in) | 36 | 35 | 35 | 31 | 26 | 27 |
| AWC (in) | 3.2 | 4.1 | 3.4 | 3.0 | 2.2 | 2.3 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 9 | 7 | 12 | 6 | 6 | 4 |
| CO. FRAG. (%) | 41 | 26 | 30 | 44 | 38 | 35 |
| COLOR | dark brown, very dark brown | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | dark brown, very dark brown, dark reddish brown | dark brown, dark yellowish brown, very dark grayish brown | dark brown, very dark grayish brown, olive brown, dark yellowish brown | dark brown, dark reddish brown, very dark grayish brown |
| TEXTURE | gl, vgl | gl, gcl, vkl | gl, gsl, scl, sl | vgl, vgsl | vgl, gl, xgl | gl, gfsl, vgl, sl |
| PARENT MATERIAL | mafic greenstone ultramafic | schist | granite mafic sandstone | serpentine greenstone, mafic granite | mafic granite ultramafic | granite mafic sandstone |
| SOIL FAMILY | | | | | | |

Table 7. Comparison of stand structure variables by plant association in the red fir-white fir and red fir/shrub sub-series for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| STAND AGE | 255 | 259 | 237 | 356 | 321 | 199 |
| NUMBER OF PLOTS | 9 | 13 | 12 | 13 | 16 | 14 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 10594 | 11062 | 12338 | 7802 | 7660 | 12017 |
| BASAL AREA ($ft^2$) | 311 | 363 | 382 | 251 | 257 | 372 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 | 0 | 0 |
| SITE CLASS | 2-3 | 2-3 | 2-3 | 3-5 | 2-4 | 1-3 |
| SITE INDEX | 125-150 | 125-150 | 125-150 | 75-125 | 100-150 | 125-175 |
| STAND DENSITY INDEX | 468 | 472 | 524 | 346 | 392 | 531 |

Table 8. Comparison of vegetation variables by plant association in the red fir-white fir and red fir/shrub sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 92 | 85 | 85 | 90 | 95 | 82 |
| GRASS COVER | <1 | 1 | 1 | <1 | <1 | 3 |
| FORB COVER | 26 | 7 | 8 | 11 | 5 | 4 |
| SHRUB COVER | 9 | 2 | 6 | 60 | 58 | 4 |
| TREE COVER | 83 | 78 | 78 | 68 | 72 | 70 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| RED FIR | 51 (100) | 39 (100) | 51 (100) | 21 (100) | 34 (100) | 64 (100) |
| WHITE FIR | 17 (100) | 16 (100) | 29 (95) | 15 (92) | 12 (60) | 3 (37) |
| DOUGLAS-FIR | 17 (54) | 25 (82) | | 16 (76) | 18 (65) | 1 (6) |
| SUGAR PINE | 5 (9) | 14 (58) | 5 (5) | 16 (92) | 15 (95) | |
| BREWER'S SPRUCE | 3 (36) | | | 5 (38) | 5 (14) | |
| INCENSE CEDAR | 4 (45) | | 3 (5) | 3 (38) | 4 (14) | 1 (6) |
| WESTERN WHITE PINE | 5 (18) | | | 1 (7) | 8 (30) | 1 (6) |
| MOUNTAIN HEMLOCK | | | | | | |
| CHINQUAPIN | | | | 5 (15) | 2 (10) | |
| JEFFREY PINE | | | | 3 (7) | 4 (10) | |

Table 8. Comparison of vegetation variables by plant association in the red fir-white fir and red fir/shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| RED FIR | 3 (90) | 6 (88) | 2 (95) | 7 (92) | 7 (100) | 5 (100) |
| WHITE FIR | 2 (90) | 2 (70) | 2 (75) | 3 (100) | 1 (60) | 1 (43) |
| SUGAR PINE | 1 (9) | 1 (41) | | 1 (53) | 1 (40) | |
| DOUGLAS-FIR | | 1 (23) | | 2 (46) | 1 (45) | |
| INCENSE CEDAR | 1 (36) | | 1 (5) | 1 (30) | 1 (25) | |
| BREWER'S SPRUCE | 1 (18) | | | 1 (23) | 1 (14) | |
| MOUNTAIN HEMLOCK | | | | | | |
| CHINQUAPIN | | | | 3 (38) | | |
| WESTERN WHITE PINE | | | | 1 (7) | 1 (20) | |
| PACIFIC DOGWOOD | 1 (18) | | | | | |

8. Comparison of vegetation variables by plant association in the fir-white fir and red fir/shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ ACTR-CHUMO | ABMAS-ABCO/ PTAQL | ABMAS-ABCO/ SYMO/ PYPI | ABMAS/ QUSA-QUVA | ABMAS/ QUSA-ARNE2 | ABMAS/ PYSE |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| SADLER OAK | 2 (54) | | 1 (25) | | 48 (100) | 3 (6) |
| CREEPING SNOWBERRY | 2 (36) | 1 (29) | 4 (75) | 1 (46) | 1 (14) | 1 (18) |
| WILD ROSE | 1 (81) | 1 (29) | 8 (25) | 1 (15) | 1 (10) | 1 (18) |
| PINEMAT MANZANITA | | 8 (17) | 1 (5) | 27 (84) | 22 (85) | 3 (31) |
| THIN-LEAFED HUCKLEBERRY | 3 (36) | | | 3 (15) | 19 (25) | |
| MOUNTAIN MAPLE | 3 (45) | | 1 (10) | 10 (7) | 1 (5) | |
| THIMBLEBERRY | 2 (63) | | 1 (20) | | 1 (5) | 1 (6) |
| HUCKLEBERRY OAK | 1 (36) | | | 11 (100) | | |
| LOBB'S GOOSEBERRY | 7 (9) | | 1 (10) | | 1 (5) | 8 (25) |
| DWARF OREGON-GRAPE | 7 (45) | 1 (5) | 1 (5) | 5 (23) | 1 (10) | |
| DESERT GOOSEBERRY | | 1 (11) | 1 (35) | 1 (15) | | 1 (6) |
| SERVICEBERRY | 1 (18) | | 1 (25) | 1 (7) | 1 (5) | 1 (6) |
| TRAILING BLACKBERRY | 1 (9) | 1 (11) | | 1 (15) | 1 (10) | |
| STICKY CURRANT | 2 (9) | | 1 (25) | | | 1 (25) |
| GREENLEAF MANZANITA | | | | 1 (30) | | 3 (25) |
| GOOSEBERRY | 1 (27) | | 1 (5) | | | 1 (6) |
| OREGON BOXWOOD | | | 1 (5) | 1 (15) | | |
| SLENDER SALAL | | | | 1 (15) | 2 (5) | |
| BITTER CHERRY | | | 1 (10) | 1 (7) | | 1 (6) |
| PYGMY HOLLY-GRAPE | 1 (9) | | | 5 (30) | 1 (10) | |
| HAZELNUT | 1 (18) | | | 5 (7) | | |
| SNOWBRUSH | | | 6 (14) | 1 (7) | | 2 (6) |
| OCEANSPRAY | 1 (9) | | | 1 (23) | | 1 (6) |
| MOUNTAIN ASH | 1 (18) | | 1 (5) | | | |
| PACIFIC RHODODENDRON | | | | | | |

Table 8. Comparison of vegetation variables by plant association in the red fir-white fir and red fir/shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABMAS-ABCO/ACTR-CHUMO | ABMAS-ABCO/PTAQL | ABMAS-ABCO/SYMO/PYPI | ABMAS/QUSA-QUVA | ABMAS/QUSA-ARNE2 | ABMAS/PYSE |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| WHITE-VEINED WINTERGREEN | 1 (90) | 1 (52) | 1 (90) | 1 (69) | 1 (60) | 1 (93) |
| PRINCE'S PINE | 5 (90) | 8 (41) | 5 (60) | 5 (100) | 3 (95) | 2 (62) |
| ONE-SIDED WINTERGREEN | 1 (63) | 1 (35) | 3 (55) | 1 (30) | 1 (25) | 2 (87) |
| LITTLE PRINCE'S PINE | 1 (45) | 1 (11) | 1 (80) | | 1 (20) | 1 (43) |
| HAWKWEED | 1 (27) | 1 (35) | 1 (5) | 1 (30) | | 1 (68) |
| THREE-LEAVED ANEMONE | 2 (72) | 1 (5) | 1 (25) | | 2 (5) | 3 (25) |
| SISKIYOU PENSTEMON | 1 (9) | | 1 (25) | 1 (7) | | 1 (43) |
| RATTLESNAKE PLANTAIN | 1 (45) | | 1 (20) | 1 (30) | 1 (30) | |
| BRACKENFERN | 1 (9) | 11 (70) | 3 (50) | 1 (7) | 1 (10) | 3 (31) |
| VANILLALEAF | 13 (90) | | 1 (5) | 2 (15) | | |
| FALSE SOLOMON'S SEAL | 1 (27) | | 3 (35) | 1 (23) | | 1 (12) |
| SMALL BEDSTRAW | 1 (18) | | 1 (30) | 1 (7) | 1 (5) | 1 (18) |
| STICKY STARWORT | 1 (27) | 1 (23) | 1 (10) | 1 (23) | | |
| SHELTON'S VIOLET | 1 (9) | 1 (5) | 3 (20) | 1 (7) | | |
| TRAILPLANT | 2 (36) | 1 (5) | 1 (30) | 1 (7) | | 1 (6) |
| MOUNTAIN DOGBANE | | 1 (29) | 1 (10) | 1 (53) | 1 (5) | 1 (25) |
| HOOKER'S FAIRYBELL | 2 (63) | 1 (5) | 1 (10) | 2 (15) | 1 (5) | 1 (6) |
| SWEET CICELY | 1 (27) | | 1 (5) | | | 1 (25) |
| STREAM VIOLET | 1 (27) | 1 (11) | 1 (5) | | | |
| BEARGRASS | 1 (9) | 29 (17) | | 2 (38) | 10 (20) | |
| QUEEN'S CUP | 3 (54) | 1 (5) | 1 (5) | 1 (7) | | |
| SPOTTED CORALROOT | 1 (18) | 1 (11) | 1 (5) | | | 1 (31) |
| WASHINGTON LILY | 1 (27) | | 1 (20) | 1 (7) | | |
| MOUNTAIN MONARDELLA | | | 3 (20) | | | 2 (31) |

| | | | | | | |
|---|---|---|---|---|---|---|
| STARRY SOLOMON'S PLUME | 2 (36) | 3 (5) | | | 1 (5) | 1 (18) |
| LUPINE | | 6 (11) | | 1 (7) | 1 (5) | 1 (37) |
| CORALROOT | | | 1 (14) | | | |
| STRIPED CORALROOT | 1 (27) | 1 (35) | | | 1 (5) | 1 (6) |
| WHITE TRILLIUM | 1 (36) | | 1 (5) | | | |
| WILD STRAWBERRY | 3 (18) | 1 (17) | | | 8 (5) | |
| STARFLOWER | 1 (27) | | | 2 (15) | | |
| TOOTHED WINTERGREEN | 1 (9) | | | 1 (30) | 1 (25) | |
| WOODLAND PENSTEMON | | | | 2 (15) | | |
| WHITE INSIDE-OUT FLOWER | | 1 (5) | 1 (10) | 3 (15) | | |
| KELLOGIA | | | 1 (5) | | 1 (10) | 1 (6) |
| SNOWPLANT | 1 (9) | 1 (5) | | 1 (7) | 1 (10) | |
| PINE VIOLET | | | | | | 1 (18) |
| SHARP-TOOTHED ANGELICA | | | 1 (5) | 1 (7) | | 1 (18) |
| RAYLESS ARNICA | 1 (9) | | | 1 (23) | | 1 (12) |
| IRIS | | 1 (5) | | 1 (46) | | |
| LEAFY LOUSEWORT | 1 (9) | | | | | 4 (12) |
| SWORDFERN | 1 (18) | | | 1 (30) | | |
| ARNICA | 1 (9) | | | 1 (7) | 1 (5) | 4 (18) |
| CALIFORNIA HAREBELL | 1 (18) | | | | 1 (5) | |
| TWINFLOWER | | | | 25 (7) | | |
| WINDFLOWER | 1 (9) | | 1 (5) | 1 (7) | | |
| BLUE WILDRYE | | 1 (17) | 3 (25) | | | |
| SEDGE | | | 2 (10) | 1 (30) | 1 (5) | 1 (6) |
| CALIFORNIA BROME | 1 (27) | | 4 (5) | | | 2 (25) |
| BEARDED FESCUE | | | | 1 (7) | 1 (5) | |
| ALASKA ONIONGRASS | 1 (18) | | | | | 1 (6) |
| LARGE MOUNTAIN BROME | | 1 (5) | 1 (10) | | | 35 (6) |
| FIRE REEDGRASS | 1 (9) | | | 1 (7) | | |
| WESTERN FESCUE | 1 (18) | | | 1 (15) | | |

Table 9. Confirmed locations of the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS-TSME/ PYSE | ABMAS-LIDE3 | ABMAS-PIBR/ QUSA-VAME | TSME-QUSA |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | | | X | X | X |
| ORLEANS RD | X | X | | | | |
| LOWER TRINITY RD | X | | | X | | |
| MAD RIVER RD | | X | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | | | X | |
| HAPPY CAMP RD | | | X | | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | X | X | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | X | | | | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| UPPER LAKE RD | | X | | | | |
| COVELO RD | | X | | | | |
| STONYFORD RD | | X | | | | |
| CORNING RD | | X | | | | |

Table 10. Comparison of environment and soil variables by plant association in the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS- TSME/ PYSE | ABMAS- LIDE3 | ABMAS- PIBR/ QUSA- VAME | TSME/ QUSA |
| NUMBER OF PLOTS | 5 | 26 | 6 | 4 | 16 | 5 |
| **ENVIRONMENT:** ELEVATION (ft) | 4482 | 6254 | 6118 | 5035 | 4760 | 5304 |
| ASPECT (deg) | N. EAST | N.WEST EAST | N. WEST | S. WEST | NORTH | N. EAST |
| SLOPE (%) | 28 | 23 | 24 | 28 | 49 | 55 |
| RADIATION INDEX | .362 | .449 | .440 | .505 | .313 | .358 |
| SURFACE ROCK(%) | 1 | 4 | 5 | 1 | 5 | 7 |
| **SOILS:** SOIL DEPTH (in) | 24 | 30 | 38 | 32 | 30 | 35 |
| AWC (in) | 2.9 | 3.2 | 3.0 | 2.9 | 2.7 | 2.4 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 4 | 7 | 6 | 10 | 7 | 9 |
| CO. FRAG. (%) | 18 | 22 | 18 | 30 | 40 | 28 |
| COLOR | dark brown | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | very dark brown, dark brown | dark brown | dark brown, very dark grayish brown, dark yellowish brown | dark brown |
| TEXTURE | gl | l, gl, vgl, gscl | gsl | gsl | sl, vgl, gfsl | gsl, vgl |
| PARENT MATERIAL | phyllite schist | schist mixed sandstone | granite mafic | granite | granite mafic | granite mafic |
| SOIL FAMILY | | | | | | |

Table 11. Comparison of stand structure variables by plant association in the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS- TSME/ PYSE | ABMAS- LIDE3 | ABMAS- PIBR/ QUSA- VAME | TSME/ QUSA |
| STAND AGE | 325 | 239 | 213 | 209 | 321 | 407 |
| NUMBER OF PLOTS | 5 | 22 | 6 | 3 | 14 | 4 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 9272 | 11753 | 12733 | 9580 | 8580 | 11490 |
| BASAL AREA ($ft^2$) | 277 | 400 | 347 | 214 | 309 | 247 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 | 0 | 0 |
| SITE CLASS | 2-3 | 2-4 | 1A-2 | 1-2 | 3-5 | 2-3 |
| SITE INDEX | 125-150 | 100-150 | 150-200 | 150-175 | 75-125 | 125-150 |
| STAND DENSITY INDEX | 361 | 542 | 499 | 346 | 457 | 330 |

Table 12. Comparison of vegetation variables by plant association in the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS- TSME/ PYSE | ABMAS- LIDE3 | ABMAS- PIBR/ QUSA- VAME | TSME/ QUSA |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 97 | 69 | 77 | 87 | 90 | 84 |
| GRASS COVER | 0 | <1 | <1 | <1 | <1 | <1 |
| FORB COVER | 2 | 1 | 6 | 10 | 4 | 30 |
| SHRUB COVER | 86 | <1 | 3 | 8 | 34 | 70 |
| TREE COVER | 63 | 65 | 71 | 75 | 73 | 56 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| RED FIR | 35 (100) | 47 (96) | 58 (100) | 38 (100) | 30 (87) | 8 (80) |
| WHITE FIR | 8 (60) | 13 (53) | 30 (16) | 25 (100) | 6 (62) | 7 (60) |
| DOUGLAS-FIR | 18 (80) | 5 (7) | 1 (16) | 12 (50) | 16 (50) | 10 (40) |
| SUGAR PINE | 6 (80) | | | 5 (25) | 6 (25) | |
| BREWER'S SPRUCE | | | 1 (16) | | 32 (100) | 4 (40) |
| INCENSE CEDAR | | | | 8 (100 | | |
| WESTERN WHITE PINE | | | 7 (16) | | 4 (43) | 10 (20) |
| MOUNTAIN HEMLOCK | | | 7 (100) | | 3 (12) | 36 (100) |
| CHINQUAPIN | | | | | 5 (6) | |
| JEFFREY PINE | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS- TSME/ PYSE | ABMAS- LIDE3 | ABMAS- PIBR/ QUSA- VAME | TSME/ QUSA |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| RED FIR | 5 (100) | 5 (92) | 2 (100) | 11 (100) | 5 (87) | 2 (60) |
| WHITE FIR | 1 (100) | 2 (46) | 1 (16) | 5 (100) | 3 (81) | 1 (60) |
| SUGAR PINE | 1 (40) | 1 (3) | | | 1 (18) | |
| DOUGLAS-FIR | 1 (40) | 1 (7) | | | 1 (6) | 2 (20) |
| INCENSE CEDAR | | 1 (3) | | 40 (25) | 1 (12) | 2 (20) |
| BREWER'S SPRUCE | | | 1 (16) | | 5 (93) | 1 (40) |
| MOUNTAIN HEMLOCK | | | 1 (100) | | 1 (12) | 3 (100) |
| CHINQUAPIN | 1 (20) | | | 1 (25) | | 1 (40) |
| WESTERN WHITE PINE | | | 1 (16) | | 1 (31) | |
| PACIFIC DOGWOOD | 1 (20) | | | 1 (50) | | 1 (20) |

: 12. Comparison of vegetation variables by plant association in th[illegible] fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series[illegible]inued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS-TSME/ PYSE | ABMAS-LIDE3 | ABMAS-PIBR/ QUSA-VAME | TSME/ QUSA |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| SADLER OAK | 16 (100) | | | 1 (25) | 27 (87) | 10 (100) |
| CREEPING SNOWBERRY | 1 (20) | 1 (23) | | 3 (100) | 2 (6) | |
| WILD ROSE | | | 1 (16) | 2 (75) | 1 (12) | 1 (20) |
| PINEMAT MANZANITA | 2 (20) | 1 (7) | | | 1 (37) | 32 (40) |
| THIN-LEAFED HUCKLEBERRY | 5 (20) | | 5 (50) | | 15 (93) | 52 (60) |
| MOUNTAIN MAPLE | | | | 2 (25) | 2 (37) | 1 (40) |
| THIMBLEBERRY | | | | 1 (50) | | 1 (20) |
| HUCKLEBERRY OAK | | | | 1 (25) | 2 (31) | |
| LOBB'S GOOSEBERRY | | 1 (15) | | | | |
| DWARF OREGON-GRAPE | 2 (20) | | | 3 (25) | 1 (18) | 1 (20) |
| DESERT GOOSEBERRY | | 1 (3) | | 1 (50) | 1 (6) | |
| SERVICEBERRY | | | | 1 (25) | 1 (18) | 1 (20) |
| TRAILING BLACKBERRY | | | | 1 (25) | 1 (6) | |
| STICKY CURRANT | | 1 (7) | | 2 (25) | | |
| GREENLEAF MANZANITA | | | | | 1 (6) | 2 (20) |
| GOOSEBERRY | | 1 (7) | | | | |
| OREGON BOXWOOD | 1 (20) | | | 3 (25) | 1 (18) | |
| SLENDER SALAL | 6 (100) | | | | 2 (6) | |
| BITTER CHERRY | | | | 1 (25) | | |
| PYGMY HOLLY-GRAPE | | | | | | |
| HAZELNUT | | | | 1 (25) | | |
| SNOWBRUSH | | | | | | |
| OCEANSPRAY | | | | | | |
| MOUNTAIN ASH | | | | | 1 (12) | |
| PACIFIC RHODODENDRON | 66 (100) | | | | | |

Table 12. Comparison of vegetation variables by plant association in the red fir/shrub, red fir-mountain hemlock, red fir-incense cedar, red fir-Brewers spruce and mountain hemlock/shrub sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABMAS/ RHMA | ABMAS/ PYPI/ MENDOCINO | ABMAS-TSME/ PYSE | ABMAS-LIDE3 | ABMAS-PIBR/ QUSA-VAME | TSME/QUSA |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| WHITE-VEINED WINTERGREEN | 1 (40) | 1 (76) | 1 (66) | 1 (75) | 1 (56) | 1 (40) |
| PRINCE'S PINE | 1 (60) | 1 (3) | 3 (50) | 11 (75) | 2 (81) | 1 (60) |
| ONE-SIDED WINTERGREEN | | | 2 (83) | 2 (100) | 1 (43) | 2 (60) |
| LITTLE PRINCE'S PINE | 1 (40) | 1 (23) | 1 (33) | 1 (50) | 1 (37) | |
| HAWKWEED | | | 1 (16) | 1 (50) | | 1 (20) |
| THREE-LEAVED ANEMONE | | | 1 (16) | 1 (50) | 1 (12) | 1 (40) |
| SISKIYOU PENSTEMON | | 1 (3) | | 1 (75) | 1 (6) | 1 (20) |
| RATTLESNAKE PLANTAIN | 1 (40) | | 1 (16) | 1 (50) | 1 (56) | 1 (40) |
| BRACKENFERN | | | 1 (16) | 4 (75) | | |
| VANILLALEAF | | | 8 (160 | 8 (75) | 1 (18) | 4 (60) |
| FALSE SOLOMON'S SEAL | | 1 (19) | | 1 (25) | 1 (6) | 1 (20) |
| SMALL BEDSTRAW | | | | 1 (50) | | 1 (20) |
| STICKY STARWORT | | 1 (46) | | 1 (50) | 1 (6) | |
| SHELTON'S VIOLET | | 1 (42) | | | | |
| TRAILPLANT | | | | 1 (25) | | |
| MOUNTAIN DOGBANE | | 1 (3) | | 1 (25) | 1 (6) | |
| HOOKER'S FAIRYBELL | | | | 1 (50) | 1 (6) | 1 (40) |
| SWEET CICELY | | 1 (3) | | | | |
| STREAM VIOLET | | | | 1 (50) | | 1 (20) |
| BEARGRASS | 14 (100) | | | | 3 (12) | |
| QUEEN'S CUP | | | 1 (33) | 1 (25) | 1 (12) | 10 (60) |
| SPOTTED CORALROOT | | | | | 1 (6) | |
| WASHINGTON LILY | | | | 1 (25) | 1 (6) | |
| MOUNTAIN MONARDELLA | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| STARRY SOLOMON'S PLUME | | 1 (3) | | | | 2 (20) |
| LUPINE | 1 (20) | | 1 (16) | | | |
| CORALROOT | | 1 (19) | | | | 1 (20) |
| STRIPED CORALROOT | | | | 1 (25) | | |
| WHITE TRILLIUM | | | | | 1 (6) | 1 (60) |
| WILD STRAWBERRY | | | | | 1 (6) | 9 (60) |
| STARFLOWER | | | | | | 1 (40) |
| TOOTHED WINTERGREEN | | 1 (3) | | | 1 (6) | |
| WOODLAND PENSTEMON | | | | | 1 (43) | 1 (40) |
| WHITE INSIDE-OUT FLOWER | | | 1 (16) | | | 1 (40) |
| KELLOGIA | | | | | | |
| SNOWPLANT | | | | | 1 (12) | |
| PINE VIOLET | | | | | | |
| SHARP-TOOTHED ANGELICA | | | | | | |
| RAYLESS ARNICA | | | | 1 (25) | 1 (6) | |
| IRIS | | | | | | |
| LEAFY LOUSEWORT | | | | | 1 (6) | 1 (60) |
| SWORDFERN | | 1 (3) | | | | |
| ARNICA | | | | | | |
| CALIFORNIA HAREBELL | | | | 1 (25) | | |
| TWINFLOWER | | | | | 4 (6) | 40 (40) |
| WINDFLOWER | | | 1 (16) | | | 1 (20) |
| BLUE WILDRYE | | 2 (11) | 2 (16) | 1 (50) | | |
| SEDGE | | 2 (3) | | 1 (25) | | 1 (20) |
| CALIFORNIA BROME | | | 1 (33) | | | 1 (20) |
| BEARDED FESCUE | | 1 (7) | 1 (16) | 1 (25) | | |
| ALASKA ONIONGRASS | | | | | | |
| LARGE MOUNTAIN BROME | | | | 1 (25) | | 1 (20) |
| FIRE REEDGRASS | | | | 1 (50) | 1 (12) | |
| WESTERN FESCUE | | | | | | |

030201

Table 1. Environment and timber summary for the red fir-white fir/pinemat manzanita type (ABMAS-ABCO/ARNE2) N=4.

| RANGER DISTRICT | HAYFORK | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4975 | 4620 | 5320 | 161 |
| SLOPE (%) | 17 | 3 | 30 | 5 |
| ASPECT (deg) | N. EAST | | | |
| SOLAR RADIATION INDEX * | .462 | .403 | .483 | .020 |
| SURFACE ROCK | 3 | 1 | 3 | <1 |
| STAND AGE | 284 | 230 | 307 | 18 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10298 | 7129 | 11105 | 1430 |
| BASAL AREA ($ft^2$) | 280 | 240 | 307 | 34 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 345 | 255 | 385 | 53 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 2. Soils summary for the red fir-white fir/pinemat manzanita type (ABMAS-ABCO/ARNE2) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 29 | 15 | >40 |
| AWC (inches) | 2.7 | 1.1 | 5.0 |
| PARENT ROCK | schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 3 | 7 |
| COARSE FRAGMENT (%) | 39 | 20 | 68 |
| pH | 5.5 | 5.5 | 5.7 |
| COLOR | dark brown | | |
| TEXTURE | gl, kcl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 17 | 64 |
| pH | 5.9 | 5.5 | 6.2 |
| COLOR | reddish brown, dark yellowish brown | | |
| TEXTURE | gcl, kscl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 3. Vegetation summary for the red fir-white fir/pinemat manzanita type (ABMAS-ABCO/ARNE2) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 98 | 2 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 13 | 3 | 30 | 6 |
| SHRUB COVER | 43 | 13 | 70 | 13 |
| TREE COVER | 69 | 55 | 85 | 7 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 20 | 100 |
| WHITE FIR (ABCO) | 19 | 100 |
| DOUGLAS-FIR (PSME) | 21 | 100 |
| SUGAR PINE (PILA) | 19 | 100 |
| CHINQUAPIN (CACH2) | 2 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 16 | 100 |
| WHITE FIR (ABCO) | 9 | 100 |
| SUGAR PINE (PILA) | 1 | 75 |
| DOUGLAS-FIR (PSME) | 1 | 50 |
| **SHRUBS** | | |
| PINEMAT MANZANITA (ARNE2) | 43 | 100 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 25 |
| PRINCE'S PINE (CHUMO) | 4 | 75 |
| LITTLE PRINCE'S PINE (CHME2) | 12 | 25 |
| BEARGRASS (XETE) | 13 | 50 |
| SNOWPLANT (SASA3) | 1 | 75 |

Table 4. Environment and timber summary for the red fir-white fir/sadler oak type (ABMAS-ABCO/QUSA) N=13.

| RANGER DISTRICT | HAPPY CAMP, ORLEANS, LOWER TRINITY, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5021 | 4410 | 5540 | 89 |
| SLOPE (%) | 34 | 18 | 55 | 3 |
| ASPECT (deg) | N. EAST WEST | | | |
| SOLAR RADIATION INDEX * | .439 | .346 | .475 | .022 |
| SURFACE ROCK | 4 | 1 | 5 | 1 |
| STAND AGE | 224 | 104 | 442 | 28 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11222 | 8067 | 13148 | 1138 |
| BASAL AREA ($ft^2$) | 312 | 213 | 520 | 28 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 440 | 257 | 528 | 39 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 5. Soils summary for the red fir-white fir/sadler oak type (ABMAS-ABCO/QUSA) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 31 | 17 | >40 |
| AWC (inches) | 3.0 | 1.5 | 4.4 |
| PARENT ROCK | mafic<br>granite<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 7 |
| COARSE FRAGMENT (%) | 35 | 20 | 50 |
| pH | 5.8 | 5.0 | 6.3 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 21 | 51 |
| pH | 6.1 | 5.7 | 6.6 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | vsl, gcl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 6. Vegetation summary for the red fir-white fir sadler oak type (ABMAS-ABCO/QUSA) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 94 | 90 | 99 | 2 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 17 | 1 | 25 | 5 |
| SHRUB COVER | 34 | 10 | 45 | 7 |
| TREE COVER | 78 | 60 | 90 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 40 | 100 |
| WHITE FIR (ABCO) | 24 | 92 |
| DOUGLAS-FIR (PSME) | 14 | 76 |
| SUGAR PINE (PILA) | 10 | 53 |
| INCENSE CEDAR (LIDE3) | 8 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 4 | 92 |
| WHITE FIR (ABCO) | 2 | 100 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 27 | 100 |
| CREEPING SNOWBERRY (SYMO) | 1 | 61 |
| WILD ROSE (ROGY) | 3 | 46 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 23 |
| TRAILING BLACKBERRY (RUUR) | 2 | 30 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 92 |
| PRINCE'S PINE (CHUMO) | 7 | 92 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 84 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 30 |
| HAWKWEED (HIAL) | 1 | 30 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 30 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 23 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 38 |
| VANILLALEAF (ACTR) | 2 | 38 |
| TRAILPLANT (ADBI) | 1 | 30 |
| CORALROOT (COR2) | 1 | 23 |

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Table 7. Environment and timber summary for the red fir-white fir/Siskiyou penstemon-mountain monardella type (ABMAS-ABCO/PEAN2-MOOD) N=6.

| RANGER DISTRICT | ORLEANS, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5790 | 5580 | 6000 | 64 |
| SLOPE (%) | 40 | 25 | 50 | 6 |
| ASPECT (deg) | N.WEST | | | |
| SOLAR RADIATION INDEX * | .446 | .388 | .536 | .030 |
| SURFACE ROCK | 5 | 1 | 2 | <1 |
| STAND AGE | 158 | 58 | 222 | 26 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 15521 | 14567 | 16864 | 691 |
| BASAL AREA ($ft^2$) | 447 | 413 | 467 | 17 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 599 | 487 | 679 | 58 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 8. Soils summary for the red fir-white fir/Siskiyou penstemon-mountain monardella type (ABMAS-ABCO/PEAN2-MOOD) N=6.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 25 | 14 | 32 |
| AWC (inches) | 2.1 | 1.5 | 3.5 |
| PARENT ROCK | mafic phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 4 | 8 |
| COARSE FRAGMENT (%) | 30 | 17 | 35 |
| pH | 6.1 | 5.5 | 6.5 |
| COLOR | dark brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 32 | 43 |
| pH | 6.0 | 5.3 | 6.4 |
| COLOR | dark brown | | |
| TEXTURE | gl, vkl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 9. Vegetation summary for the red fir type- white fir/Siskiyou penstemon-mountain monardella (ABMAS-ABCO/PEAN2-MOOD) N=6.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 90 | 98 | 2 |
| GRASS COVER | 2 | 0 | 3 | 1 |
| HERB COVER | 14 | 10 | 25 | 3 |
| SHRUB COVER | 27 | 15 | 40 | 5 |
| TREE COVER | 73 | 65 | 85 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 33 | 100 |
| WHITE FIR (ABCO) | 38 | 100 |
| INCENSE CEDAR (LIDE3) | 4 | 50 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 3 | 83 |
| WHITE FIR (ABCO) | 5 | 100 |
| INCENSE CEDAR (LIDE3) | 1 | 50 |
| **SHRUBS** | | |
| CREEPING SNOWBERRY (SYMO) | 10 | 100 |
| WILD ROSE (ROGY) | 4 | 83 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 50 |
| THIMBLEBERRY (RUPA2) | 1 | 83 |
| LOBB'S GOOSEBERRY (RILO) | 1 | 66 |
| SERVICEBERRY (AMFL) | 2 | 33 |
| STICKY CURRANT (RIVI) | 14 | 50 |
| GOOSEBERRY (RIB) | 2 | 50 |
| BITTER CHERRY (PREM) | 9 | 33 |
| PURPLE HONEYSUCKLE (LOCO3) | 5 | 33 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 100 |
| PRINCE'S PINE (CHUMO) | 1 | 66 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 33 |
| HAWKWEED (HIAL) | 1 | 83 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 50 |
| SISKIYOU PENSTEMON (PEAN2) | 3 | 100 |
| SMALL BEDSTRAW (GATR2) | 2 | 66 |
| SHELTON'S VIOLET (VISH) | 1 | 33 |
| TRAILPLANT (ADBI) | 1 | 33 |
| MOUNTAIN DOGBANE (APPU) | 1 | 33 |
| SWEET CICELY (OSCH) | 1 | 100 |
| STREAM VIOLET (VIGL) | 1 | 50 |
| MOUNTAIN MONARDELLA (MOOD) | 3 | 83 |
| LUPINE (LUP2) | 2 | 66 |
| PINE VIOLET (VILO) | 1 | 50 |
| SHARP-TOOTHED ANGELICA (ANAR3) | 2 | 33 |
| PACIFIC HOUND'S-TONGUE (CYGR) | 1 | 33 |
| BANEBERRY (ACRUA) | 2 | 33 |
| ASTER (ASBR) | 1 | 50 |
| INDIAN PAINTBRUSH (CAS3) | 1 | 66 |
| CALIFORNIA BROME (BRCA1) | 2 | 33 |
| BEARDED FESCUE (FESU1) | 18 | 33 |

Table 10. Environment and timber summary for the red fir-white fir/mountain maple type (ABMAS-ABCO/ACGLT) N=4.

| RANGER DISTRICT | ORLEANS, LOWER TRINITY, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5442 | 5000 | 5860 | 176 |
| SLOPE (%) | 39 | 25 | 50 | 6 |
| ASPECT (deg) | WEST | | | |
| SOLAR RADIATION INDEX * | .515 | .471 | .527 | .048 |
| SURFACE ROCK | 2 | 1 | 3 | 2 |
| STAND AGE | 184 | 150 | 200 | 10 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9531 | 9367 | 11367 | 897 |
| BASAL AREA ($ft^2$) | 237 | 187 | 307 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 262 | 259 | 266 | 78 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 11. Soils summary for the red fir-white fir/mountain maple type (ABMAS-ABCO/ACGLT) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 37 | 31 | >40 |
| AWC (inches) | 2.7 | 2.1 | 2.7 |
| PARENT ROCK | granite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 15 | 9 | 32 |
| COARSE FRAGMENT (%) | 23 | 15 | 40 |
| pH | 6.2 | 6.1 | 6.4 |
| COLOR | dark brown, dark reddish brown, very dark brown | | |
| TEXTURE | gsl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 45 | 40 | 67 |
| pH | 6.2 | 6.0 | 6.4 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | stsl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 12. Vegetation summary for the red fir-white fir/mountain maple type (ABMAS-ABCO/ACGLT) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 85 | 98 | 3 |
| GRASS COVER | 1 | 0 | 3 | <1 |
| HERB COVER | 13 | 4 | 25 | 4 |
| SHRUB COVER | 36 | 21 | 50 | 9 |
| TREE COVER | 74 | 60 | 85 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 34 | 100 |
| WHITE FIR (ABCO) | 41 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 25 |
| INCENSE CEDAR (LIDE3) | 3 | 25 |
| WESTERN WHITE PINE (PIMO3) | 10 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 4 | 100 |
| WHITE FIR (ABCO) | 4 | 100 |
| INCENSE CEDAR (LIDE3) | 1 | 25 |
| CASCARA (RHPU) | 1 | 25 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 5 | 75 |
| CREEPING SNOWBERRY (SYMO) | 4 | 75 |
| WILD ROSE (ROGY) | 5 | 100 |
| MOUNTAIN MAPLE (ACGLT) | 12 | 100 |
| THIMBLEBERRY (RUPA2) | 4 | 100 |
| HUCKLEBERRY OAK (QUVA) | 1 | 25 |
| LOBB'S GOOSEBERRY (RILO) | 2 | 25 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 25 |
| DESERT GOOSEBERRY (RIVEG) | 2 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| STICKY CURRANT (RIVI) | 2 | 50 |
| HAZELNUT (COCOC) | 2 | 25 |
| SERVICEBERRY (AMAL) | 1 | 25 |
| APPLEGATE GOOSEBERRY (RIMA2) | 1 | 25 |
| NUTALL WILLOW (SASC) | 1 | 25 |
| DOUGLAS'SPIREA (SPDO) | 1 | 25 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 75 |
| PRINCE'S PINE (CHUMO) | 5 | 50 |
| ONE-SIDED WINTERGREEN (PYSE) | 5 | 25 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 75 |
| HAWKWEED (HIAL) | 1 | 75 |
| THREE-LEAVED ANEMONE (ANDE) | 3 | 50 |
| SISKIYOU PENSTEMON (PEAN2) | 2 | 25 |
| BRACKENFERN (PTAQL) | 5 | 25 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 75 |
| SMALL BEDSTRAW (GATR2) | 1 | 25 |
| STICKY STARWORT (STJA) | 1 | 50 |
| SHELTON'S VIOLET (VISH) | 2 | 25 |
| TRAILPLANT (ADBI) | 1 | 25 |
| MOUNTAIN DOGBANE (APPU) | 1 | 25 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 25 |
| SWEET CICELY (OSCH) | 1 | 50 |
| STREAM VIOLET (VIGL) | 1 | 25 |
| MOUNTAIN MONARDELLA (MOOD) | 1 | 50 |
| CORALROOT (COR2) | 1 | 25 |
| WHITE TRILLIUM (TROV2) | 1 | 25 |
| KELLOGIA (KEGA) | 1 | 25 |
| SHARP-TOOTHED ANGELICA (ANAR3) | 1 | 25 |
| SPREADING DOGBANE (APAN) | 1 | 25 |
| BUCKWHEAT (ERIG) | 1 | 25 |
| PEAVINE (LATHY) | 10 | 25 |
| MODOC LITHOPHRAGMA (LIRU) | 1 | 25 |
| ALPINE KNOTWEED (POPH) | 1 | 25 |
| BLUE WILDRYE (ELGL) | 1 | 50 |
| LARGE MOUNTAIN BROME (BRMA3) | 1 | 50 |
| FIRE REEDGRASS (CAKO) | 1 | 25 |

Table 13. Environment and timber summary for the red fir-white fir/broad-leaved arnica type (ABMAS-ABCO/ARLA2) N=3.

| RANGER DISTRICT | ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5237 | 4930 | 5520 | 171 |
| SLOPE (%) | 53 | 43 | 62 | 6 |
| ASPECT (deg) | NORTH | | | |
| SOLAR RADIATION INDEX * | .298 | .255 | .336 | .024 |
| SURFACE ROCK | 5 | 2 | 11 | 3 |
| STAND AGE | 317 | 251 | 404 | 45 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11579 | 10500 | 12657 | 1078 |
| BASAL AREA ($ft^2$) | 306 | 306 | 307 | 1 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 449 | 418 | 480 | 31 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 14. Soils summary for the red fir-white fir/broad-leaved arnica type (ABMAS-ABCO/ARLA2) N=3.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 31 | 26 | >40 |
| AWC (inches) | 3.0 | 1.5 | 4.4 |
| PARENT ROCK | mafic schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 4 | 9 |
| COARSE FRAGMENT (%) | 36 | 30 | 49 |
| pH | 6.2 | 6.1 | 6.3 |
| COLOR | dark brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 39 | 30 | 52 |
| pH | 6.1 | 6.0 | 6.3 |
| COLOR | dark brown, yellowish brown | | |
| TEXTURE | gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 15. Vegetation summary for the red fir-white fir/broad-leaved arnica type (ABMAS-ABCO/ARLA2) N=3.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 95 | 98 | 1 |
| GRASS COVER | 2 | 1 | 5 | 1 |
| HERB COVER | 48 | 40 | 55 | 4 |
| SHRUB COVER | 8 | 4 | 16 | 4 |
| TREE COVER | 75 | 55 | 90 | 10 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 48 | 100 |
| WHITE FIR (ABCO) | 25 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 66 |
| INCENSE CEDAR (LIDE3) | 1 | 33 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 2 | 100 |
| WHITE FIR (ABCO) | 6 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 66 |
| INCENSE CEDAR (LIDE3) | 1 | 33 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 5 | 33 |
| CREEPING SNOWBERRY (SYMO) | 2 | 100 |
| WILD ROSE (ROGY) | 2 | 100 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 33 |
| THIMBLEBERRY (RUPA2) | 3 | 66 |
| LOBB'S GOOSEBERRY (RILO) | 1 | 33 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 33 |
| HAZELNUT (COCOC) | 4 | 33 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | 1 | 100 |
| WHITE-VEINED WINTERGREEN (PYPI) | 2 | 100 |
| PRINCE'S PINE (CHUMO) | 1 | 33 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 33 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 66 |
| HAWKWEED (HIAL) | 1 | 66 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 33 |
| SISKIYOU PENSTEMON (PEAN2) | 2 | 33 |
| VANILLALEAF (ACTR) | 1 | 33 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 33 |
| SMALL BEDSTRAW (GATR2) | 1 | 33 |
| STICKY STARWORT (STJA) | 2 | 33 |
| TRAILPLANT (ADBI) | 1 | 66 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 33 |
| SWEET CICELY (OSCH) | 1 | 100 |
| STREAM VIOLET (VIGL) | 1 | 33 |
| SPOTTED CORALROOT (COMA4) | 1 | 33 |
| WASHINGTON LILY (LIWAP) | 1 | 33 |
| CORALROOT (COR2) | 1 | 33 |
| STARFLOWER (TRLA3) | 1 | 33 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 33 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 33 |
| PACIFIC HOUND'S-TONGUE (CYGR) | 48 | 66 |
| BROAD-LEAVED ARNICA (ARLA2) | 3 | 33 |
| BIG DEERVETCH (LOCR) | 1 | 33 |
| RED COLUMBINE (AQFO) | 40 | 33 |
| HEART-LEAVED ARNICA (ARCO3) | 1 | 33 |
| BEARDED FESCUE (FESU1) | 2 | 66 |
| LARGE MOUNTAIN BROME (BRMA3) | 1 | 33 |
| WESTERN FESCUE (FEOC1) | | |

Table 16. Environment and timber summary for the red fir-white fir/creeping snowberry-wild rose type (ABMAS-ABCO/SYMO-ROGY/PEAN2) N=17.

| RANGER DISTRICT | ORLEANS, SALMON RIVER, LOWER TRINITY, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5658 | 5120 | 6080 | 56 |
| SLOPE (%) | 32 | 8 | 52 | 4 |
| ASPECT (deg) | S. WEST | | | |
| SOLAR RADIATION INDEX * | .441 | .266 | .536 | .023 |
| SURFACE ROCK | 2 | 1 | 3 | <1 |
| STAND AGE | 157 | 73 | 245 | 12 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10509 | 7089 | 12091 | 709 |
| BASAL AREA ($ft^2$) | 305 | 213 | 400 | 19 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 459 | 345 | 606 | 34 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 17. Soils summary for the red fir-white fir/creeping snowberry-wild rose type (ABMAS-ABCO/SYMO-ROGY/PEAN2) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 33 | 20 | >40 |
| AWC (inches) | 3.1 | 1.6 | 3.6 |
| PARENT ROCK | mafic<br>granite<br>greenstone<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 5 | 17 |
| COARSE FRAGMENT (%) | 31 | 14 | 37 |
| pH | 6.0 | 5.3 | 6.5 |
| COLOR | dark brown, very dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, vkl, gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 26 | 48 |
| pH | 5.9 | 5.1 | 6.5 |
| COLOR | dark brown, very dark brown, dark yellowish brown | | |
| TEXTURE | gl, vgl, vkl, gsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 18. Vegetation summary for the red fir-white fir/creeping snowberry-wild rose type (ABMAS-ABCO/SYMO-ROGY/PEAN2) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 75 | 99 | 2 |
| GRASS COVER | 1 | 0 | 3 | <1 |
| HERB COVER | 13 | 2 | 18 | 3 |
| SHRUB COVER | 6 | 1 | 12 | 1 |
| TREE COVER | 85 | 65 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 49 | 100 |
| WHITE FIR (ABCO) | 35 | 100 |
| DOUGLAS-FIR (PSME) | 4 | 29 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 3 | 94 |
| WHITE FIR (ABCO) | 4 | 100 |
| **SHRUBS** | | |
| CREEPING SNOWBERRY (SYMO) | 4 | 94 |
| WILD ROSE (ROGY) | 2 | 82 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 29 |
| THIMBLEBERRY (RUPA2) | 1 | 41 |
| LOBB'S GOOSEBERRY (RILO) | 1 | 52 |
| STICKY CURRANT (RIVI) | 5 | 23 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 88 |
| PRINCE'S PINE (CHUMO) | 3 | 88 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 58 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 58 |
| HAWKWEED (HIAL) | 1 | 52 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 64 |
| SISKIYOU PENSTEMON (PEAN2) | 2 | 94 |
| BRACKENFERN (POMU1) | 1 | 23 |
| VANILLALEAF (ACTR) | 1 | 35 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 29 |
| SMALL BEDSTRAW (GATR2) | 1 | 29 |
| SHELTON'S VIOLET (VISH) | 1 | 41 |
| TRAILPLANT (ADBI) | 1 | 47 |
| SWEET CICELY (OSCH) | 1 | 52 |
| STREAM VIOLET (VIGL) | 1 | 52 |
| SPOTTED CORALROOT (COMA4) | 1 | 41 |
| WASHINGTON LILY (LIWAP) | 1 | 23 |
| STARRY SOLOMON'S PLUME (SMST) | 1 | 35 |
| LUPINE (LUP2) | 2 | 21 |
| PINE VIOLET (VILO) | 1 | 23 |
| BEARDED FESCUE (FESU1) | 5 | 47 |
| ALASKA ONIONGRASS (MESU) | 1 | 29 |

Table 19. Environment and timber summary for the red fir-white fir/vanillaleaf-prince's pine type (ABMAS-ABCO/ACTR-CHUMO) N=11 .

| RANGER DISTRICT | GASQUET, ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5177 | 4700 | 5730 | 100 |
| SLOPE (%) | 46 | 20 | 60 | 6 |
| ASPECT (deg) | S. WEST ** N.EAST | | | |
| SOLAR RADIATION INDEX * | .399 | .208 | .536 | .037 |
| SURFACE ROCK | 2 | 0 | 4 | 2 |
| STAND AGE | 227 | 123 | 361 | 24 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10594 | 5470 | 11669 | 1307 |
| BASAL AREA ($ft^2$) | 311 | 200 | 360 | 28 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 468 | 338 | 528 | 35 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

** Southwest aspects are moderated by topographic shading.

Table 20. Soils summary for the red fir-white fir/vanillaleaf-prince's pine type (ABMAS-ABCO/ACTR-CHUMO) N=11.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 36 | 33 | >40 |
| AWC (inches) | 3.2 | 1.9 | 4.8 |
| PARENT ROCK | mafic greenstone ultramafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 5 | 12 |
| COARSE FRAGMENT (%) | 41 | 20 | 62 |
| pH | 5.7 | 5.3 | 6.5 |
| COLOR | dark brown, very dark brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 43 | 15 | 76 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | gl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 21. Vegetation summary for the red fir-white fir/vanillaleaf-prince's pine type (ABMAS-ABCO/ACTR-CHUMO) N=11.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 90 | 99 | 3 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 26 | 15 | 52 | 8 |
| SHRUB COVER | 9 | 2 | 27 | 3 |
| TREE COVER | 83 | 70 | 98 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 51 | 100 |
| WHITE FIR (ABCO) | 17 | 100 |
| DOUGLAS-FIR (PSME) | 17 | 54 |
| BREWER'S SPRUCE (PIBR) | 3 | 36 |
| INCENSE CEDAR (LIDE3) | 4 | 45 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 3 | 90 |
| WHITE FIR (ABCO) | 2 | 90 |
| INCENSE CEDAR (LIDE3) | 1 | 36 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 2 | 54 |
| CREEPING SNOWBERRY (SYMO) | 2 | 36 |
| WILD ROSE (ROGY) | 1 | 81 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 3 | 36 |
| MOUNTAIN MAPLE (ACGLT) | 3 | 45 |
| THIMBLEBERRY (RUPA2) | 2 | 63 |
| HUCKLEBERRY OAK (QUVA) | 1 | 36 |
| DWARF OREGON-GRAPE (BENE1) | 7 | 45 |
| GOOSEBERRY (RIB) | 1 | 27 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 90 |
| PRINCE'S PINE (CHUMO) | 5 | 90 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 63 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 45 |
| HAWKWEED (HIAL) | 1 | 27 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 72 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 45 |
| VANILLALEAF (ACTR)FALSE | 13 | 90 |
| SOLOMON'3 SEAL (SMRAA) | 1 | 27 |
| STICKY STARWORT (STJA) | 1 | 27 |
| TRAILPLANT (ADBI) | 2 | 36 |
| HOOKER'S FAIRYBELL (DIHO2) | 2 | 63 |
| SWEET CICELY (OSCH) | 1 | 27 |
| STREAM VIOLET (VIGL) | 1 | 27 |
| QUEEN'S CUP (CLUN2) | 3 | 54 |
| WASHINGTON LILY (LIWAP) | 1 | 27 |
| STARRY SOLOMON'S PLUME (SMST) | 2 | 36 |
| STRIPED CORALROOT (COST1) | 1 | 27 |
| WHITE TRILLIUM (TROV2) | 1 | 36 |
| STARFLOWER (TRLA3) | 1 | 27 |
| ASTER (ASLE7) | 1 | 27 |
| CALIFORNIA BROME (BRCA1) | 1 | 27 |

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Table 22. Environment and timber summary for the red fir-white fir/brackenfern type (ABMAS-ABCO/PTAQL) N=17.

| RANGER DISTRICT | GASQUET, ORLEANS, LOWER TRINITY, MAD RIVER, UPPER LAKE, HAYFORK | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5378 | 5000 | 6600 | 96 |
| SLOPE (%) | 22 | 8 | 32 | 2 |
| ASPECT (deg) | N. EAST WEST | | | |
| SOLAR RADIATION INDEX * | .460 | .403 | .505 | .008 |
| SURFACE ROCK | 1 | 0 | 5 | 1 |
| STAND AGE | 213 | 100 | 380 | 22 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11062 | 8314 | 14296 | 1419 |
| BASAL AREA ($ft^2$) | 363 | 253 | 507 | 33 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 472 | 324 | 628 | 43 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 23. Soils summary for the red fir-white fir/brackenfern type (ABMAS-ABCO/PTAQL) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 35 | 18 | 41 |
| AWC (inches) | 4.1 | 2.2 | 5.1 |
| PARENT ROCK | schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 13 |
| COARSE FRAGMENT (%) | 26 | 5 | 40 |
| pH | 5.6 | 5.5 | 6.2 |
| COLOR | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | | |
| TEXTURE | gl, gcl, vkl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 28 | 15 | 40 |
| pH | 5.6 | 5.0 | 6.2 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, gcl, vkl, vkcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 24. Vegetation summary for the red fir-white fir/brackenfern type (ABMAS-ABCO/PTAQL) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 85 | 70 | 95 | 2 |
| GRASS COVER | 1 | 0 | 1 | <1 |
| HERB COVER | 7 | 1 | 15 | 7 |
| SHRUB COVER | 2 | 0 | 5 | 1 |
| TREE COVER | 78 | 60 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 39 | 100 |
| WHITE FIR (ABCO) | 16 | 100 |
| DOUGLAS-FIR (PSME) | 25 | 82 |
| SUGAR PINE (PILA) | 14 | 58 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 6 | 88 |
| WHITE FIR (ABCO) | 2 | 70 |
| SUGAR PINE (PILA0 | 1 | 41 |
| DOUGLAS-FIR (PSME) | 1 | 23 |
| **SHRUBS** | | |
| CREEPING SNOWBERRY (SYMO) | 1 | 29 |
| WILD ROSE (ROGY) | 1 | 29 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 52 |
| PRINCE'S PINE (CHUMO) | 8 | 41 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 35 |
| HAWKWEED (HIAL) | 1 | 35 |
| BRACKENFERN (PTAQL) | 11 | 70 |
| STICKY STARWORT (STJA) | 1 | 23 |
| MOUNTAIN DOGBANE (APPU) | 1 | 29 |
| STRIPED CORALROOT (COST1) | 1 | 35 |

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Table 25. Environment and timber summary for the red fir-white fir/creeping snowberry/white-veined wintergreen type (ABMAS-ABCO/SYMO/PYPI) N=20.

| RANGER DISTRICT | ORLEANS, LOWER TRINITY, HAPPY CAMP, UPPER LAKE, STONYFORD | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5792 | 5270 | 6618 | 67 |
| SLOPE (%) | 29 | 10 | 50 | 3 |
| ASPECT (deg) | S. WEST<br>N. WEST | | | |
| SOLAR RADIATION INDEX * | .445 | .301 | .544 | .030 |
| SURFACE ROCK | 2 | 0 | 5 | 2 |
| STAND AGE | 174 | 83 | 300 | 15 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12338 | 7989 | 14716 | 1352 |
| BASAL AREA ($ft^2$) | 382 | 267 | 427 | 30 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 524 | 458 | 619 | 31 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 26. Soils summary for the red fir-white fir/creeping snowberry/white-veined wintergreen type (ABMAS-ABCO/SYMO/PYPI) N=20.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 35 | 25 | 41 |
| AWC (inches) | 3.4 | 2.1 | 5.8 |
| PARENT ROCK | granite<br>mafic<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 12 | 3 | 20 |
| COARSE FRAGMENT (%) | 30 | 10 | 45 |
| pH | 5.9 | 5.5 | 6.2 |
| COLOR | dark brown, very dark brown, dark reddish brown | | |
| TEXTURE | gl, gsl, scl, sl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 31 | 10 | 44 |
| pH | 5.8 | 5.4 | 6.2 |
| COLOR | dark brown, dark yellowish brown, darl reddish brown | | |
| TEXTURE | gl, gsl, kcl, vgsl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 27. Vegetation summary for the red fir-white fir/creeping snowberry/white-veined wintergreen type (ABMAS-ABCO/SYMO/PYPI) N=20.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 85 | 75 | 99 | 4 |
| GRASS COVER | 1 | 0 | 1 | <1 |
| HERB COVER | 8 | 1 | 22 | 2 |
| SHRUB COVER | 6 | 0 | 15 | 2 |
| TREE COVER | 78 | 65 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 51 | 100 |
| WHITE FIR (ABCO) | 29 | 95 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 2 | 95 |
| WHITE FIR (ABCO) | 2 | 75 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 1 | 25 |
| CREEPING SNOWBERRY (SYMO) | 4 | 75 |
| WILD ROSE (ROGY) | 8 | 25 |
| THIMBLEBERRY (RUPA2) | 1 | 20 |
| DESERT GOOSEBERRY (RIVEG) | 1 | 35 |
| SERVICEBERRY (AMFL) | 1 | 20 |
| STICKY CURRANT (RIVI) | 1 | 25 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 90 |
| PRINCE'S PINE (CHUMO) | 5 | 60 |
| ONE-SIDED WINTERGREEN (PYSE) | 3 | 55 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 80 |
| THREE-LEAVED ANEMONE (ANDE) | 2 | 25 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 25 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 20 |
| BRACKENFERN (PTAQL) | 3 | 50 |
| FALSE SOLOMON'S SEAL (SMRAA) | 3 | 35 |
| SMALL BEDSTRAW (GATR2) | 1 | 30 |
| SHELTON'S VIOLET (VISH) | 3 | 20 |
| TRAILPLANT (ADBI) | 1 | 30 |
| WASHINGTON LILY (LIWAP) | 1 | 20 |
| MOUNTAIN MONARDELLA (MOOD) | 1 | 20 |
| BLUE WILDRYE (ELGL) | 1 | 25 |

Table 28. Environment and timber summary for the red fir/sadler oak-huckleberry oak type (ABMAS/QUSA-QUVA) N=13.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4708 | 4450 | 5010 | 106 |
| SLOPE (%) | 37 | 22 | 55 | 6 |
| ASPECT (deg) | SOUTH WEST | | | |
| SOLAR RADIATION INDEX * | .495 | .378 | .555 | .018 |
| SURFACE ROCK | 6 | 2 | 13 | 5 |
| STAND AGE | 347 | 165 | 652 | 38 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7802 | 3205 | 11810 | 1006 |
| BASAL AREA ($ft^2$) | 251 | 147 | 360 | 19 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | 75-125 | | | |
| STAND DENSITY INDEX | 346 | 258 | 410 | 29 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 29. Soils summary for the red fir/sadler oak-huckleberry oak type (ABMAS/QUSA-QUVA) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 31 | 15 | >40 |
| AWC (inches) | 3.0 | 1.0 | 3.2 |
| PARENT ROCK | serpentine<br>greenstone<br>granite<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 9 |
| COARSE FRAGMENT (%) | 44 | 30 | 58 |
| pH | 5.6 | 5.0 | 6.3 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | vgl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 55 | 32 | 70 |
| pH | 5.9 | 5.5 | 6.7 |
| COLOR | strong brown, yellowish brown, dark brown | | |
| TEXTURE | vkl, xgl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 30. Vegetation summary for the red fir/sadler oak-huckleberry oak type (ABMAS/QUSA-QUVA) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 80 | 99 | 3 |
| GRASS COVER | <1 | 0 | 3 | <1 |
| HERB COVER | 11 | 1 | 20 | 3 |
| SHRUB COVER | 60 | 35 | 85 | 5 |
| TREE COVER | 68 | 40 | 90 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 21 | 100 |
| WHITE FIR (ABCO) | 15 | 92 |
| DOUGLAS-FIR (PSME) | 16 | 76 |
| SUGAR PINE (PILA) | 16 | 92 |
| BREWER'S SPRUCE (PIBR) | 5 | 38 |
| INCENSE CEDAR (LIDE3) | 3 | 38 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 7 | 92 |
| WHITE FIR (ABCO) | 3 | 100 |
| SUGAR PINE (PILA) | 1 | 53 |
| DOUGLAS-FIR (PSME) | 2 | 46 |
| INCENSE CEDAR (LIDE3) | 1 | 30 |
| BREWER'S SPRUCE (PIBR) | 1 | 23 |
| CHINQUAPIN (CACH2) | 3 | 38 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 25 | 100 |
| CREEPING SNOWBERRY (SYMO) | 1 | 46 |
| PINEMAT MANZANITA (ARNE2) | 27 | 84 |
| HUCKLEBERRY OAK (QUVA) | 11 | 100 |
| DWARF OREGON-GRAPE (BENE1) | 5 | 23 |
| GREENLEAF MANZANITA (ARPA9) | 1 | 30 |
| PYGMY HOLLY-GRAPE (BEPU) | 5 | 30 |
| OCEANSPRAY (HODI) | 1 | 23 |
| BOX-LEAVED SILKTASSEL (GABU2) | 1 | 23 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 69 |
| PRINCE'S PINE (CHUMO) | 5 | 100 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 30 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 33 |
| HAWKWEED (HIAL) | 1 | 30 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 30 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 23 |
| STICKY STARWORT (STJA) | 1 | 23 |
| MOUNTAIN DOGBANE (APPU) | 1 | 53 |
| BEARGRASS (XETE) | 2 | 38 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 30 |
| RAYLESS ARNICA (ARDI3) | 1 | 23 |
| IRIS (IRI) | 1 | 30 |
| SWORDFERN (POMU1) | 1 | 46 |
| SEDGE (CAR1) | 1 | 30 |

Table 31. Environment and timber summary for the red fir/sadler oak-pinemat manzanita type (ABMAS/QUSA-ARNE2) N=20.

| RANGER DISTRICT | ORLEANS, HAPPY CAMP, UKONOM, LOWER TRINITY, GASQUET, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4846 | 4200 | 5300 | 73 |
| SLOPE (%) | 25 | 10 | 50 | 3 |
| ASPECT (deg) | EAST WEST | | | |
| SOLAR RADIATION INDEX * | .460 | .375 | .555 | .014 |
| SURFACE ROCK | 6 | 0 | 12 | 2 |
| STAND AGE | 285 | 68 | 636 | 34 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7660 | 4260 | 11940 | 765 |
| BASAL AREA ($ft^2$) | 257 | 239 | 524 | 23 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 40 | | | |
| BASAL AREA ($ft^2$) | 7 0 | | | |
| SITE CLASS | 2-4 | | | |
| SITE INDEX | 100-150 | | | |
| STAND DENSITY INDEX | 392 | 239 | 628 | 35 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

** The variability in cubic volume in this type is due to severe infestation of Cytospora.

Table 32. Soils summary for the red fir/sadler oak-pinemat manzanita type (ABMAS/QUSA-ARNE2) N=20.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 26 | 178 | >40 |
| AWC (inches) | 2.2 | 1.2 | 3.6 |
| PARENT ROCK | mafic granite ultramafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 11 |
| COARSE FRAGMENT (%) | 38 | 9 | 52 |
| pH | 5.7 | 5.2 | 6.5 |
| COLOR | dark brown, very dark grayish brown, olive brown, dark yellowish brown | | |
| TEXTURE | vgl, gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 44 | 14 | 64 |
| pH | 5.9 | 5.5 | 6.5 |
| COLOR | yellowish brown, light olive brown, dark yellowish brown, dark brown | | |
| TEXTURE | vgl, xgl, gl, vgsl, cl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 33. Vegetation summary for the red fir/sadler oak-pinemat manzanita type (ABMAS/QUSA-ARNE2) N=20.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 80 | 99 | 1 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 5 | 1 | 11 | 2 |
| SHRUB COVER | 58 | 33 | 95 | 6 |
| TREE COVER | 72 | 50 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 34 | 100 |
| WHITE FIR (ABCO) | 12 | 60 |
| DOUGLAS-FIR (PSME) | 18 | 65 |
| SUGAR PINE (PILA) | 15 | 95 |
| WESTERN WHITE PINE (PIMO3) | 8 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 7 | 100 |
| WHITE FIR (ABCO) | 1 | 60 |
| SUGAR PINE (PILA) | 1 | 40 |
| DOUGLAS-FIR (PSME) | 1 | 45 |
| INCENSE CEDAR (LIDE3) | 1 | 25 |
| WESTERN WHITE PINE (PIMO3) | 1 | 20 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 48 | 100 |
| PINEMAT MANZANITA (ARNE2) | 22 | 85 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 19 | 25 |
| GREENLEAF MANZANITA (ARPA9) | 3 | 25 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 60 |
| PRINCE'S PINE (CHUMO) | 3 | 95 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 25 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 20 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 30 |
| BEARGRASS (XETE) | 10 | 20 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 25 |

Table 34. Environment and timber summary for the red fir/one-sided wintergreen type (ABMAS/PYSE) N=16.

| RANGER DISTRICT | BIG BAR, ORLEANS, HAPPY CAMP, LOWER TRINITY, UPPER LAKE | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 6156 | 5750 | 6500 | 55 |
| SLOPE (%) | 36 | 19 | 50 | 3 |
| ASPECT (deg) | NORTH<br>EAST<br>S. WEST | | | |
| SOLAR RADIATION INDEX * | .413 | .301 | .556 | .036 |
| SURFACE ROCK | 2 | 0 | 3 | <1 |
| STAND AGE | 190 | 87 | 377 | 17 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12017 | 8740 | 15847 | 868 |
| BASAL AREA ($ft^2$) | 372 | 253 | 547 | 32 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 531 | 321 | 679 | 51 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 35. Soils summary for the red fir/one-sided wintergreen type (ABMAS/PYSE) N=16.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid/Cyric | | |
| DEPTH ** (inches) | 27 | 8 | >40 |
| AWC (inches) | 2.3 | 0.4 | 5.2 |
| PARENT ROCK | granite<br>mafic<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 2 | 10 |
| COARSE FRAGMENT (%) | 35 | 8 | 47 |
| pH | 5.9 | 5.5 | 6.5 |
| COLOR | dark brown, dark reddish brown, very dark grayish brown | | |
| TEXTURE | gl, gfsl, vgl, sl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 10 | 48 |
| pH | 5.9 | 5.3 | 6.3 |
| COLOR | dark brown, dark yellowish brown, dark grayish brown | | |
| TEXTURE | vgl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 36. Vegetation summary for the red fir/one-sided wintergreen type (ABMAS/PYSE) N=16.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 82 | 65 | 98 | 3 |
| GRASS COVER | 3 | 0 | 5 | 2 |
| HERB COVER | 4 | 1 | 10 | 3 |
| SHRUB COVER | 4 | 0 | 6 | 2 |
| TREE COVER | 70 | 55 | 90 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 64 | 100 |
| WHITE FIR (ABCO) | 3 | 37 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 5 | 100 |
| WHITE FIR (ABCO) | 1 | 43 |
| **SHRUBS** | | |
| PINEMAT MANZANITA (ARNE2) | 3 | 31 |
| LOBB'S GOOSEBERRY (RILO) | 8 | 25 |
| STICKY CURRANT (RIVI) | 1 | 25 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 93 |
| PRINCE'S PINE (CHUMO) | 2 | 62 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 87 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 43 |
| HAWKWEED (HIAL) | 1 | 68 |
| THREE-LEAVED ANEMONE (ANDE) | 3 | 25 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 43 |
| BRACKENFERN (PTAQL) | 3 | 31 |
| MOUNTAIN DOGBANE (APPU) | 1 | 25 |
| SWEET CICELY (OSCH) | 1 | 25 |
| SPOTTED CORALROOT (COMA4) | 1 | 31 |
| MOUNTAIN MONARDELLA (MOOD) | 2 | 31 |
| LUPINE (LUP2) | 1 | 37 |
| CALIFORNIA BROME (BRCA1) | 2 | 25 |

Table 37. Environment and timber summary for the red fir/Pacific rhododendron type (ABMAS/RHMA) N=5.

| RANGER DISTRICT | LOWER TRINITY, UKONOM, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4482 | 4340 | 4710 | 70 |
| SLOPE (%) | 28 | 16 | 45 | 5 |
| ASPECT (deg) | N. EAST | | | |
| SOLAR RADIATION INDEX * | .362 | .256 | .423 | .039 |
| SURFACE ROCK | 1 | 0 | 7 | 3 |
| STAND AGE | 298 | 215 | 418 | 34 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9272 | 8345 | 10413 | 1565 |
| BASAL AREA ($ft^2$) | 277 | 240 | 320 | 49 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 361 | 271 | 453 | 70 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 38. Soils summary for the red fir/Pacific rhododendron type (ABMAS/RHMA) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 24 | 20 | 30 |
| AWC (inches) | 2.9 | 2.5 | 2.9 |
| PARENT ROCK | phyllite schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 2 | 7 |
| COARSE FRAGMENT (%) | 18 | 10 | 25 |
| pH | 5.2 | 5.0 | 6.5 |
| COLOR | dark brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 30 | 20 | 48 |
| pH | 5.6 | 5.5 | 5.7 |
| COLOR | dark yellowish brown | | |
| TEXTURE | gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 39. Vegetation summary for the red fir/Pacific rhododendron type (ABMAS/RHMA) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 95 | 99 | <1 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 2 | 1 | 5 | 2 |
| SHRUB COVER | 86 | 80 | 90 | 2 |
| TREE COVER | 63 | 45 | 85 | 7 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 35 | 100 |
| WHITE FIR (ABCO) | 8 | 60 |
| DOUGLAS-FIR (PSME) | 18 | 80 |
| SUGAR PINE (PILA) | 7 | 80 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 5 | 100 |
| WHITE FIR (ABCO) | 1 | 100 |
| SUGAR PINE (PILA) | 1 | 40 |
| DOUGLAS-FIR (PSME) | 1 | 40 |
| CHINQUAPIN (CACH2) | 1 | 20 |
| PACIFIC DOGWOOD (CONU2) | 1 | 20 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 16 | 100 |
| CREEPING SNOWBERRY (SYMO) | 1 | 20 |
| PINEMAT MANZANITA (ARNE2) | 2 | 20 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 5 | 20 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 20 |
| OREGON BOXWOOD (PAMY) | 1 | 20 |
| SLENDER SALAL (GAOV) | 6 | 100 |
| PACIFIC RHODODENDRON (RHMA) | 66 | 100 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 40 |
| PRINCE'S PINE (CHUMO) | 1 | 60 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 40 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| BEARGRASS (XETE) | 14 | 100 |
| LUPINE (LUP2) | 1 | 20 |
| PHANTOM ORCHID (EBAU) | 1 | 20 |
| BIG DEERVETCH (LOCR) | 1 | 20 |
| PINESAP (MOHYI) | 1 | 20 |

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Table 40. Environment and timber summary for the red fir/white-veined wintergreen/Mendocino type (ABMAS/PYPI/MENDOCINO) N=26.

| RANGER DISTRICT | COVELO, STONYFORD, CORNING, UPPER LAKE, HAYFORK, ORLEANS, MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 6254 | 5320 | 6980 | 137 |
| SLOPE (%) | 23 | 8 | 43 | 2 |
| ASPECT (deg) | N. WEST EAST | | | |
| SOLAR RADIATION INDEX * | .449 | .308 | .552 | .041 |
| SURFACE ROCK | 4 | 1 | 12 | <1 |
| STAND AGE | 218 | 97 | 344 | 12 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11753 | 8362 | 16074 | 952 |
| BASAL AREA ($ft^2$) | 400 | 267 | 453 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-4 | | | |
| SITE INDEX | 100-150 | | | |
| STAND DENSITY INDEX | 542 | 343 | 623 | 28 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 41. Soils summary for the red fir/white-veined wintergreen/ Mendocino type (ABMAS/PYPI/MENDOCINO) N=26.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 30 | 16 | >40 |
| AWC (inches) | 3.2 | 1.3 | 5.4 |
| PARENT ROCK | schist<br>mixed<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 1 | 16 |
| COARSE FRAGMENT (%) | 22 | 5 | 31 |
| pH | 5.5 | 4.5 | 6.0 |
| COLOR | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | | |
| TEXTURE | l, gl, vgl, gscl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 38 | 10 | 70 |
| pH | 5.6 | 5.5 | 6.0 |
| COLOR | dark yellowish brown, dark brown, strong brown | | |
| TEXTURE | gl, gcl, vkcl, l | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 42. Vegetation summary for the red fir/white-veined wintergreen/Mendocino type (ABMAS/PYPI/MENDOCINO) N=26.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 69 | 41 | 90 | 3 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 1 | 0 | 2 | <1 |
| SHRUB COVER | <1 | 0 | 1 | <1 |
| TREE COVER | 65 | 40 | 90 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 47 | 96 |
| WHITE FIR (ABCO) | 13 | 53 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 5 | 92 |
| WHITE FIR (ABCO) | 2 | 46 |
| **SHRUBS** | | |
| CREEPING SNOWBERRY (SYMO) | 1 | 23 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 76 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 23 |
| STICKY STARWORT (STJA) | 1 | 46 |
| SHELTON'S VIOLET (VISH) | 1 | 42 |

Table 43. Environment and timber summary for the red fir-mountain hemlock/one-sided wintergreen type (ABMAS-TSME/PYSE) N=6.

| RANGER DISTRICT | HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 6118 | 5400 | 6530 | 161 |
| SLOPE (%) | 24 | 5 | 47 | 6 |
| ASPECT (deg) | N.WEST | | | |
| SOLAR RADIATION INDEX * | .440 | .354 | .508 | .022 |
| SURFACE ROCK | 5 | 1 | 7 | 1 |
| STAND AGE | 211 | 178 | 295 | 20 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12733 | 11492 | 13623 | 1301 |
| BASAL AREA ($ft^2$) | 347 | 293 | 400 | 32 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 499 | 432 | 565 | 56 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 44. Soils summary for the red fir-mountain hemlock/one-sided wintergreen type (ABMAS-TSME/PYSE) N=6.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Cyric | | |
| DEPTH ** (inches) | 38 | 36 | >40 |
| AWC (inches) | 3.0 | 2.4 | 3.3 |
| PARENT ROCK | granite mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 4 | 9 |
| COARSE FRAGMENT (%) | 18 | 14 | 25 |
| pH | 5.9 | 5.7 | 6.2 |
| COLOR | very dark brown, dark brown | | |
| TEXTURE | gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 31 | 23 | 39 |
| pH | 6.2 | 6.0 | 6.5 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | gsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 45. Vegetation summary for the red fir-mountain hemlock/one-sided wintergreen type (ABMAS-TSME/PYSE) N=6.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 77 | 65 | 90 | 5 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 6 | 1 | 9 | 3 |
| SHRUB COVER | 3 | 0 | 7 | 1 |
| TREE COVER | 71 | 60 | 77 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 58 | 100 |
| MOUNTAIN HEMLOCK (TSME) | 7 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 2 | 100 |
| MOUNTAIN HEMLOCK (TSME) | 1 | 100 |
| **SHRUBS** | | |
| THIN-LEAVED HUCKLEBERRY (VAME) | 5 | 50 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 66 |
| PRINCE'S PINE (CHUMO) | 3 | 50 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 83 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 33 |
| QUEEN'S CUP (CLUN2) | 1 | 33 |
| CORDILLERAN ARNICA (ARMO) | 1 | 33 |
| ASTER (AST) | 1 | 33 |
| SEDGE (CAR1) | 1 | 33 |

Table 46. Environment and timber summary for the red fir-incense cedar type (ABMAS-LIDE3) N=4.

| RANGER DISTRICT | LOWER TRINITY, GASQUET, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5035 | 4570 | 5580 | 234 |
| SLOPE (%) | 28 | 14 | 45 | 8 |
| ASPECT (deg) | S. WEST | | | |
| SOLAR RADIATION INDEX * | .505 | .475 | .514 | .047 |
| SURFACE ROCK | 1 | 0 | 2 | <1 |
| STAND AGE | 178 | 85 | 251 | 34 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | 9580 | 9190 | 9970 | 2311 |
| VOLUME ($ft^3$) | 214 | 180 | 253 | 52 |
| BASAL AREA ($ft^2$) | | | | |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 346 | 310 | 407 | 30 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 47. Soils summary for the red fir-incense cedar type (ABMAS-LIDE3) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 32 | 28 | >40 |
| AWC (inches) | 2.9 | 2.5 | 5.1 |
| PARENT ROCK | granite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 5 | 11 |
| COARSE FRAGMENT (%) | 30 | 20 | 37 |
| pH | 6.0 | 6.0 | 6.0 |
| COLOR | dark brown | | |
| TEXTURE | gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 29 | 16 | 44 |
| pH | 5.7 | 5.0 | 6.0 |
| COLOR | dark brown | | |
| TEXTURE | gsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 48. Vegetation summary for the red fir-incense cedar type (ABMAS-LIDE3) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 87 | 80 | 98 | 4 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 10 | 5 | 16 | 10 |
| SHRUB COVER | 8 | 1 | 15 | 3 |
| TREE COVER | 75 | 60 | 90 | 6 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 38 | 100 |
| WHITE FIR (ABCO) | 25 | 100 |
| DOUGLAS-FIR (PSME) | 12 | 50 |
| SUGAR PINE (PILA) | 5 | 25 |
| INCENSE CEDAR (LIDE3) | 8 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 11 | 100 |
| WHITE FIR (ABCO) | 5 | 100 |
| INCENSE CEDAR (LIDE3) | 40 | 25 |
| CHINQUAPIN (CACH2) | 1 | 25 |
| PACIFIC DOGWOOD (CONU2) | 1 | 50 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 1 | 25 |
| CREEPING SNOWBERRY (SYMO) | 3 | 100 |
| WILD ROSE (ROGY) | 2 | 75 |
| MOUNTAIN MAPLE (ACGLT) | 2 | 25 |
| THIMBLEBERRY (RUPA2) | 1 | 50 |
| HUCKLEBERRY OAK (QUVA) | 1 | 25 |
| DWARF OREGON-GRAPE (BENE1) | 3 | 25 |
| DESERT GOOSEBERRY (RIVEG) | 1 | 50 |
| SERVICEBERRY (AMFL) | 1 | 25 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| STICKY CURRANT (RIVI) | 2 | 25 |
| OREGON BOXWOOD (PAMY) | 3 | 25 |
| BITTER CHERRY (PREM) | 1 | 25 |
| HAZELNUT (COCOC) | 1 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 75 |
| PRINCE'S PINE (CHUMO) | 11 | 75 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 100 |
| LITTLE PRINCE'S PINE (CHME2) | 2 | 50 |
| HAWKWEED (HIAL) | 1 | 50 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 50 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 75 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| BRACKENFERN (PTAQL) | 4 | 75 |
| VANILLALEAF (ACTR) | 8 | 75 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 25 |
| SMALL BEDSTRAW (GATR2) | 1 | 50 |
| STICKY STARWORT (STJA) | 1 | 50 |
| TRAILPLANT (ADBI) | 1 | 25 |
| MOUNTAIN DOGBANE (APPU) | 1 | 25 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 50 |
| STREAM VIOLET (VIGL) | 1 | 50 |
| QUEEN'S CUP (CLUN2) | 1 | 25 |
| WASHINGTON LILY (LIWAP) | 1 | 25 |
| STRIPED CORALROOT (COST1) | 1 | 25 |
| RAYLESS ARNICA (ARDI3) | 1 | 25 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 25 |
| SCOULER'S HAREBELL (CASC4) | 1 | 50 |
| BLUE WILDRYE (ELGL) | 1 | 50 |
| SEDGE (CAR1) | 1 | 25 |
| BEARDED FESCUE (FESU1) | 1 | 25 |
| LARGE MOUNTAIN BROME (BRMA3) | 1 | 25 |
| FIRE REEDGRASS (CAKO) | 1 | 50 |

Table 49. Environment and timber summary for the red fir-Brewer's spruce/sadler oak-thin-leaved huckleberry type (ABMAS-PIBR/QUSA-VAME) N=16.

| RANGER DISTRICT | GASQUET, UKONOM, HAPPY CAMP, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4760 | 4080 | 5160 | 101 |
| SLOPE (%) | 49 | 27 | 70 | 5 |
| ASPECT (deg) | NORTH | | | |
| SOLAR RADIATION INDEX * | .313 | .239 | .371 | .016 |
| SURFACE ROCK | 5 | 2 | 18 | 5 |
| STAND AGE | 296 | 118 | 600 | 34 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8580 | 5827 | 11818 | 761 |
| BASAL AREA ($ft^2$) | 309 | 200 | 400 | 24 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | 75-125 | | | |
| STAND DENSITY INDEX | 457 | 286 | 645 | 45 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 50. Soils summary for the red fir-Brewer's spruce/sadler oak-thin-leaved huckleberry type (ABMAS-PIBR/QUSA-VAME) N=16.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 30 | 12 | >40 |
| AWC (inches) | 2.7 | 1.1 | 3.8 |
| PARENT ROCK | granite<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 14 |
| COARSE FRAGMENT (%) | 40 | 25 | 60 |
| pH | 5.8 | 5.0 | 6.8 |
| COLOR | dark brown, very dark grayish brown, dark yellowish brown | | |
| TEXTURE | gl, vgl, gfsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 40 | 32 | 70 |
| pH | 6.0 | 5.5 | 7.0 |
| COLOR | dark yellowish brown, dark brown, yellowish brown | | |
| TEXTURE | vgl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 51. Vegetation summary for the red fir-Brewer's spruce/sadler oak-thin-leaved huckleberry type (ABMAS-PIBR/QUSA-VAME) N=16.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 80 | 98 | 2 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 4 | 1 | 15 | 1 |
| SHRUB COVER | 34 | 8 | 70 | 6 |
| TREE COVER | 73 | 60 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 30 | 87 |
| WHITE FIR (ABCO) | 6 | 62 |
| DOUGLAS-FIR (PSME) | 16 | 50 |
| SUGAR PINE (PILA) | 6 | 25 |
| BREWER'S SPRUCE (PIBR) | 32 | 100 |
| WESTERN WHITE PINE (PIMO3) | 4 | 43 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 5 | 87 |
| WHITE FIR (ABCO) | 3 | 81 |
| BREWER'S SPRUCE (PIBR) | 4 | 93 |
| WESTERN WHITE PINE (PIMO3) | 1 | 31 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 27 | 87 |
| PINEMAT MANZANITA (ARNE2) | 1 | 37 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 16 | 93 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 37 |
| HUCKLEBERRY OAK (QUVA) | 2 | 31 |
| **HERBS & GRASSES** | | |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 56 |
| PRINCE'S PINE (CHUMO) | 2 | 81 |
| ONE-SIDED WINTERGREEN (PYSE) | 1 | 43 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 37 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 56 |
| WOODLAND PENSTEMON (PENE1) | 1 | 43 |

Table 52. Environment and timber summary for the mountain hemlock/sadler oak type (TSME-QUSA) N=5.

| RANGER DISTRICT | HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 5304 | 4180 | 6600 | 487 |
| SLOPE (%) | 55 | 40 | 76 | 13 |
| ASPECT (deg) ** | N. EAST | | | |
| SOLAR RADIATION INDEX * | .358 | .248 | .406 | .040 |
| SURFACE ROCK | 7 | 1 | 15 | 3 |
| STAND AGE | 300 | 87 | 591 | 90 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11490 | 9639 | 14684 | 1655 |
| BASAL AREA ($ft^2$) | 247 | 240 | 333 | 42 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | | | |
| BASAL AREA ($ft^2$) | 0 | | | |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 330 | 243 | 411 | 38 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**Topographic shading and heavy snow packs in drainages contribute to a cool environment where snow often remains late into July.

Table 53. Soils summary for the mountain hemlock/sadler oak type (TSME/QUSA) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid/Cyric | | |
| DEPTH ** (inches) | 35 | 30 | >40 |
| AWC (inches) | 2.4 | 2.1 | 3.5 |
| PARENT ROCK | granite<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 2 | 10 |
| COARSE FRAGMENT (%) | 28 | 15 | 43 |
| pH | 6.1 | 5.3 | 7.0 |
| COLOR | dark brown | | |
| TEXTURE | gsl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 37 | 70 |
| pH | 6.4 | 5.6 | 7.8 |
| COLOR | dark brown | | |
| TEXTURE | vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 54. Vegetation summary for the mountain hemlock/sadler oak type (TSME/QUSA) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 84 | 55 | 99 | 7 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 30 | 1 | 55 | 12 |
| SHRUB COVER | 70 | 60 | 80 | 13 |
| TREE COVER | 56 | 40 | 70 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| RED FIR (ABMAS) | 8 | 80 |
| WHITE FIR (ABCO) | 7 | 60 |
| DOUGLAS-FIR (PSME) | 10 | 40 |
| BREWER'S SPRUCE (PIBR) | 4 | 40 |
| WESTERN WHITE PINE (PIMO3) | 10 | 20 |
| MOUNTAIN HEMLOCK (TSME) | 36 | 100 |
| LODGEPOLE PINE (PICO) | 18 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| RED FIR (ABMAS) | 2 | 60 |
| WHITE FIR (ABCO) | 1 | 60 |
| DOUGLAS-FIR (PSME) | 2 | 20 |
| INCENSE CEDAR (LIDE3) | 2 | 20 |
| BREWER'S SPRUCE (PIBR) | 1 | 40 |
| MOUNTAIN HEMLOCK (TSME) | 3 | 100 |
| CHINQUAPIN (CACH2) | 1 | 40 |
| PACIFIC DOGWOOD (CONU2) | 1 | 20 |
| BLUE ELDERBERRY (SACA4) | 1 | 20 |
| PACIFIC YEW (TABR) | 1 | 20 |
| LODGEPOLE PINE (PICO3) | 2 | 20 |
| **SHRUBS** | | |
| SADLER OAK (QUSA) | 10 | 100 |
| WILD ROSE (ROGY) | 1 | 20 |
| PINEMAT MANZANITA (ARNE2) | 32 | 40 |
| THIN-LEAVED HUCKLEBERRY (VAME) | 52 | 60 |
| MOUNTAIN MAPLE (ACGLT) | 1 | 40 |
| THIMBLEBERRY (RUPA2) | 1 | 20 |
| DWARF OREGON-GRAPE (BENE1) | 1 | 20 |
| SERVICEBERRY (AMAL) | 1 | 40 |
| GREENLEAF MANZANITA (ARPA9) | 2 | 20 |
| GOOSEBERRY (RIB) | 2 | 20 |
| OREGON BOXWOOD (PAMY) | 8 | 40 |
| SLENDER SALAL (GAOV) | 8 | 40 |
| MOUNTAIN ASH (SOCA3) | 1 | 20 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 40 |
| PRINCE'S PINE (CHUMO) | 2 | 60 |
| ONE-SIDED WINTERGREEN (PYSE) | 2 | 60 |
| HAWKWEED (HIAL) | 1 | 20 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 40 |
| SISKIYOU PENSTEMON (PEAN2) | 1 | 20 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| VANILLALEAF (ACTR) | 4 | 60 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 20 |
| SMALL BEDSTRAW (GATR2) | 1 | 20 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 40 |
| STREAM VIOLET (VIGL) | 1 | 20 |
| QUEEN'S CUP (CLUN2) | 10 | 60 |
| STARRY SOLOMON'S PLUME (SMST) | 2 | 20 |
| CORALROOT (COR2) | 1 | 20 |
| WHITE TRILLIUM (TROV2) | 1 | 60 |
| WILD STRAWBERRY (FRCA1) | 9 | 60 |
| STARFLOWER (TRLA3) | 1 | 40 |
| WOODLAND PENSTEMON (PENE1) | 1 | 40 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 40 |
| LEAFY LOUSEWORT (PERA1) | 1 | 60 |
| TWINFLOWER (LIBOL) | 40 | 40 |
| WINDFLOWER (ANQUM) | 1 | 20 |
| PENSTEMON (PENST) | 1 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 40 |
| FOAMFLOWER (TITRU) | 1 | 40 |
| EVERLASTING (ANT) | 1 | 20 |
| WILLOW-HERB (EPILO) | 1 | 20 |
| LEWISIA (LEW) | 1 | 40 |
| SEDGE (CAR1) | 1 | 20 |
| CALIFORNIA BROME (BRCA1) | 1 | 20 |
| LARGE MOUNTAIN BROME (BRMA3) | 1 | 20 |

Appendix K. List of plant species identified in the red fir series with summary statistics.

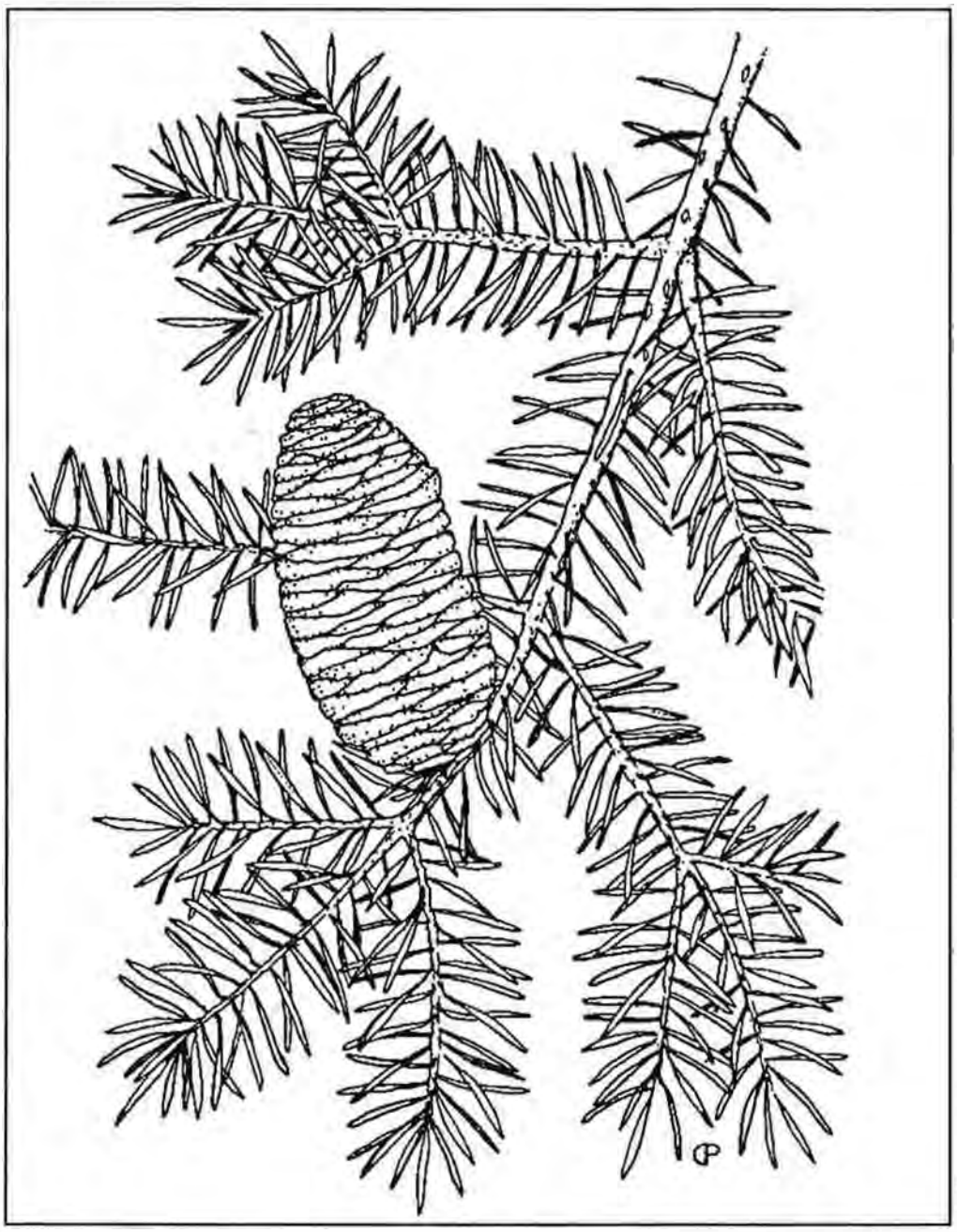
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Abies magnifica shastensis | 98% | 204 | 2 | 95 | 93 | 41.6 | 22.9 | 1.6 | 3.1 |
| Abies concolor | 76% | 160 | 1 | 55 | 54 | 20.3 | 15.3 | 1.2 | 2.4 |
| Pseudotsuga menziesii | 40% | 85 | 1 | 55 | 54 | 16.1 | 12.8 | 1.4 | 2.7 |
| Pinus lambertiana | 32% | 68 | 1 | 50 | 49 | 12.8 | 11.0 | 1.3 | 2.7 |
| Picea breweriana | 15% | 32 | 1 | 60 | 59 | 18.1 | 19.3 | 3.4 | 7.0 |
| Libocedrus decurrens | 14% | 31 | 1 | 20 | 19 | 4.4 | 3.7 | .7 | 1.4 |
| Pinus monticola | 10% | 21 | 1 | 20 | 19 | 5.5 | 5.3 | 1.2 | 2.4 |
| Tsuga heterophylla | 6% | 13 | 1 | 60 | 59 | 17.4 | 20.3 | 5.6 | 12.3 |
| Castanopsis chrysophylla | 2% | 6 | 1 | 5 | 4 | 3.0 | 1.7 | .7 | 1.8 |
| Pinus jeffreyi | 2% | 6 | 1 | 7 | 6 | 3.3 | 2.3 | .9 | 2.4 |
| Chamaecyparis lawsoniana | 1% | 3 | 1 | 5 | 4 | 3.7 | 2.3 | 1.3 | 5.7 |
| Pinus attenuata | 1% | 3 | 1 | 3 | 2 | 2.0 | 1.0 | .6 | 2.5 |
| Pinus contorta | 1% | 3 | 1 | 18 | 17 | 11.3 | 9.1 | 5.2 | 22.5 |
| Pinus ponderosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chamaecyparis nootkatensis | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taxus brevifolia | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Abies magnifica shastensis | 93% | 194 | 1 | 50 | 49 | 4.7 | 6.5 | .5 | .9 |
| Abies concolor | 75% | 156 | 1 | 20 | 19 | 2.7 | 3.4 | .3 | .5 |
| Pinus lambertiana | 16% | 34 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Pseudotsuga menziesii | 14% | 31 | 1 | 5 | 4 | 1.2 | .7 | .1 | .3 |
| Libocedrus decurrens | 13% | 28 | 1 | 40 | 39 | 2.5 | 7.4 | 1.4 | 2.9 |
| Picea breweriana | 12% | 26 | 1 | 25 | 24 | 3.1 | 4.9 | 1.0 | 2.0 |
| Tsuga mertensiana | 6% | 14 | 1 | 8 | 7 | 1.6 | 1.9 | .5 | 1.1 |
| Castanopsis chrysophylla | 5% | 11 | 1 | 5 | 4 | 2.0 | 1.5 | .5 | 1.0 |
| Pinus monticola | 5% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cornus nuttallii | 2% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Quercus chrysolepis | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sambucus caerulea | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taxus brevifolia | 1% | 4 | 1 | 5 | 4 | 2.5 | 1.9 | 1.0 | 3.0 |
| Rhamnus purshiana | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chamaecyparis lawsoniana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chamaecyparis nootkatensis | 0% | 1 | 30 | 30 | 0 | 30.0 | .0 | .0 | .0 |
| Pinus contorta | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Pinus jeffreyi | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Quercus sadleriana | 42% | 88 | 1 | 90 | 89 | 24.8 | 23.6 | 2.5 | 4.9 |
| Symphoricarpos mollis | 41% | 86 | 1 | 30 | 29 | 3.0 | 5.5 | .6 | 1.2 |
| Rosa gymnocarpa | 32% | 67 | 1 | 35 | 34 | 2.5 | 4.5 | .6 | 1.1 |
| Arctostaphylos nevadensis | 25% | 54 | 1 | 95 | 94 | 17.8 | 23.7 | 3.2 | 6.4 |
| Vaccinium membranaceum | 16% | 34 | 1 | 70 | 69 | 15.4 | 19.7 | 3.4 | 6.9 |
| Acer glabrum torreyi | 15% | 33 | 1 | 40 | 39 | 3.0 | 7.0 | 1.2 | 2.5 |
| Rubus parviflorus | 15% | 33 | 1 | 10 | 9 | 1.7 | 1.9 | .3 | .7 |
| Quercus vaccinifolia | 13% | 29 | 1 | 25 | 24 | 5.8 | 6.9 | 1.3 | 2.6 |
| Ribes lobbii | 13% | 28 | 1 | 25 | 24 | 2.3 | 4.6 | .9 | 1.8 |
| Berberis nervosa | 12% | 25 | 1 | 25 | 24 | 2.8 | 5.0 | 1.0 | 2.1 |
| Ribes velutinum glandulifera | 9% | 20 | 1 | 5 | 4 | 1.4 | .9 | .2 | .4 |
| Amelanchier florida | 9% | 19 | 1 | 2 | 1 | 1.1 | .2 | .1 | .1 |
| Rubus ursinus | 8% | 17 | 1 | 8 | 7 | 1.6 | 1.7 | .4 | .9 |
| Ribes viscosissimum | 7% | 16 | 1 | 30 | 29 | 3.6 | 7.2 | 1.8 | 3.8 |
| Arctostaphylos patula | 7% | 15 | 1 | 10 | 9 | 1.9 | 2.3 | .6 | 1.3 |
| Ribes sp. | 6% | 14 | 1 | 4 | 3 | 1.4 | .8 | .2 | .5 |
| Paxistima myrsinites | 5% | 11 | 1 | 15 | 14 | 2.5 | 4.2 | 1.3 | 2.8 |
| Gaultheria ovatifolia | 4% | 10 | 1 | 15 | 14 | 5.4 | 5.8 | 1.8 | 4.1 |
| Prunus emarginata | 4% | 10 | 1 | 15 | 14 | 2.9 | 4.4 | 1.4 | 3.1 |
| Berberis pumila | 3% | 8 | 1 | 5 | 4 | 2.8 | 1.9 | .7 | 1.6 |
| Corylus cornuta californica | 3% | 7 | 1 | 5 | 4 | 2.3 | 1.6 | .6 | 1.5 |
| Ceanothus velutinus | 2% | 6 | 1 | 15 | 14 | 3.5 | 5.6 | 2.3 | 5.9 |
| Holodiscus discolor | 2% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Ribes viscosissimum hallii | 2% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Sorbus californica | 2% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Rhododendron macrophyllum | 2% | 5 | 35 | 85 | 50 | 66.0 | 19.5 | 8.7 | 24.2 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Amaranthus albus | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lonicera conjugialis | 1% | 4 | 1 | 8 | 7 | 3.8 | 3.0 | 1.5 | 4.8 |
| Ribes marshallii | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Salix scouleriana | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier pallida | 1% | 3 | 1 | 10 | 9 | 4.0 | 5.2 | 3.0 | 12.9 |
| Garrya buxifolia | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Ribes sanguineum | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Vaccinium parvifolium | 1% | 3 | 1 | 4 | 3 | 2.3 | 1.5 | .9 | 3.8 |
| Rubus lasiococcus | 0% | 2 | 2 | 10 | 8 | 6.0 | 5.7 | 4.0 | 50.8 |
| Berberis aquifolium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Berberis piperiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Castanopsis sempervirens | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cornus stolonifera | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Garrya fremontii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Physocarpus capitatus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes lacustre | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rosa sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus leucodermis | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus vitifolius | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Salix sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sambucus caerulea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sorbus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Spiraea douglasii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Pyrola picta | 73% | 153 | 1 | 3 | 2 | 1.0 | .2 | .0 | .0 |
| Chimaphila umbellata occid. | 66% | 138 | 1 | 30 | 29 | 4.0 | 5.3 | .5 | .9 |
| Pyrola secunda | 43% | 91 | 1 | 10 | 9 | 1.6 | 1.6 | .2 | .3 |
| Chimaphila menziesii | 34% | 72 | 1 | 12 | 11 | 1.2 | 1.3 | .2 | .3 |
| Hieracium albiflorum | 25% | 53 | 1 | 2 | 1 | 1.1 | .3 | .0 | .1 |
| Anemone deltoidea | 23% | 48 | 1 | 6 | 5 | 1.9 | 1.5 | .2 | .4 |
| Penstemon anguineus | 23% | 48 | 1 | 8 | 7 | 1.6 | 1.5 | .2 | .4 |
| Goodyera oblongifolia | 20% | 42 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pteridium aquilinum lanug. | 20% | 42 | 1 | 55 | 54 | 4.8 | 11.9 | 1.8 | 3.7 |
| Achlys triphylla | 17% | 36 | 1 | 25 | 24 | 5.7 | 7.3 | 1.2 | 2.4 |
| Smilacina racemosa amplex. | 15% | 33 | 1 | 12 | 11 | 1.4 | 1.9 | .3 | .7 |
| Galium triflorum | 14% | 31 | 1 | 6 | 5 | 1.2 | .9 | .2 | .3 |
| Stellaria jamesiana | 14% | 31 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sheltonii | 14% | 31 | 1 | 8 | 7 | 1.4 | 1.4 | .2 | .5 |
| Adenocaulon bicolor | 14% | 30 | 1 | 4 | 3 | 1.2 | .6 | .1 | .2 |
| Apocynum pumilum | 13% | 29 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Disporum hookeri | 12% | 27 | 1 | 6 | 5 | 1.3 | 1.0 | .2 | .4 |
| Osmorhiza chilensis | 12% | 26 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Viola glabella | 12% | 27 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Xerophyllum tenax | 11% | 23 | 1 | 85 | 84 | 10.5 | 21.6 | 4.5 | 9.3 |
| Clintonia uniflora | 10% | 22 | 1 | 10 | 9 | 3.2 | 3.8 | .8 | 1.7 |
| Corallorhiza maculata | 9% | 19 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium washingtonianum purp. | 9% | 19 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Monardella odoratissima | 9% | 19 | 1 | 6 | 5 | 2.1 | 1.6 | .4 | .8 |
| Smilacina stellata | 9% | 19 | 1 | 3 | 2 | 1.3 | .7 | .1 | .3 |
| Lupinus sp. | 7% | 16 | 1 | 10 | 9 | 1.8 | 2.3 | .6 | 1.2 |
| Corallorhiza sp. | 7% | 16 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza striata | 6% | 14 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium ovatum | 6% | 14 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Fragaria californica | 6% | 13 | 1 | 20 | 19 | 4.2 | 5.6 | 1.6 | 3.4 |
| Trientalis latifolia | 6% | 13 | 1 | 3 | 2 | 1.3 | .6 | .2 | .4 |
| Pyrola picta dentata | 5% | 12 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon nemorosus | 5% | 11 | 1 | 2 | 1 | 1.1 | .3 | .1 | .2 |
| Vancouveria hexandra | 5% | 11 | 1 | 5 | 4 | 1.5 | 1.2 | .4 | .8 |
| Kelloggia galioides | 4% | 10 | 1 | 4 | 3 | 1.3 | .9 | .3 | .7 |
| Sarcodes sanguinea | 4% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola lobata | 4% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica arguta | 4% | 9 | 1 | 3 | 2 | 1.4 | .7 | .2 | .6 |
| Arnica discoidea | 4% | 9 | 1 | 4 | 3 | 1.3 | 1.0 | .3 | .8 |
| Iris sp. | 4% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pedicularis racemosa | 3% | 8 | 1 | 5 | 4 | 1.8 | 1.5 | .5 | 1.2 |
| Polystichum munitum | 4% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica sp. | 3% | 8 | 1 | 8 | 7 | 2.8 | 2.7 | .9 | 2.2 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Campanula prenanthoides | 3% | 7 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Linnaea borealis longiflora | 2% | 6 | 1 | 60 | 59 | 28.3 | 22.9 | 9.4 | 24.1 |
| Anemone quinquefolia minor | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynoglossum grande | 2% | 5 | 1 | 3 | 2 | 1.4 | .9 | .4 | 1.1 |
| Epilobium minutum | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium sp. | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pterospora andromedea | 2% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Actaea rubra arguta | 1% | 4 | 1 | 3 | 2 | 2.0 | .8 | .4 | 1.3 |
| Aster brickellioides | 1% | 4 | 1 | 10 | 9 | 3.5 | 4.4 | 2.2 | 6.9 |
| Campanula scouleri | 1% | 4 | 1 | 2 | 1 | 1.3 | .5 | .3 | .8 |
| Castilleja sp. | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collinsia torreyi latifolia | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium aparine | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Listera caurina | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus tracyi | 1% | 4 | 1 | 2 | 1 | 1.3 | .5 | .3 | .8 |
| Pedicularis semibarbata | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon sp. | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phacelia sp. | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox adsurgens | 1% | 4 | 1 | 3 | 2 | 1.5 | 1.0 | .5 | 1.6 |
| Pyrola picta aphylla | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrum californicum | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Allotropa virgata | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone quinquefolia oregana | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Apocynum androsaemifolium | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Apocynum sp. | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica latifolia | 1% | 3 | 7 | 60 | 53 | 34.0 | 26.5 | 15.3 | 65.9 |
| Aster ledophyllus | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dentaria tenella palmata | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Deschampsia caespitosa | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eburophyton austinae | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hackelia amethystina | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hydrophyllum sp. | 1% | 3 | 1 | 8 | 7 | 3.3 | 4.0 | 2.3 | 10.0 |
| Lotus crassifolius | 1% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Penstemon newberryi | 1% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Pleuricospora fimbriolata | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sempervirens | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aquilegia formosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica cordifolia | 0% | 2 | 10 | 40 | 30 | 25.0 | 21.2 | 15.0 | 190.6 |
| Arnica mollis | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aster sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calyptridium monospermum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calyptridium umbellatum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dodecatheon hendersonii | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erysimum capitatum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hackelia sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Monotropa hypopithys | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon deustus | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pityopus californicus | 0% | 1 | 31 | 31 | 0 | 31.0 | .0 | .0 | .0 |
| Sedum obtusatum retusum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Senecio aronicoides | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene campanulata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Synthyris reniformis cordata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tiarella unifoliata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achillea millefolium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Allium sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anaphalis margaritacea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica tomentosa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Antennaria sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Artemisia sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Asarum hartwegii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Athyrium filix-femina calif. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cortaderia sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynoglossum occidentale | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dentaria californica | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dicentra formosa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dicentra formosa oregana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium angustifolium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Erigeron sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriogonum sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erythronium sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Frasera albicaulis nitida | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Gayophytum sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Gilia capitata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Habenaria unalascensis | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heuchera micrantha erubescens | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hydrophyllum fendleri albif. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hydrophyllum occidentale | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hystrix californica | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ipomopsis aggregata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 0% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Lewisia cotyledon | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lewisia leana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Linanthus harknessii | 0% | 1 | 15 | 15 | 0 | 15.0 | .0 | .0 | .0 |
| Listera sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lithophragma rupicolum | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Mitella trifida | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Nemophila parviflora austinae | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pedicularis densiflora | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Penstemon davidsonii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phacelia mustelina | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polygonum phytolaccaefolium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Potentilla sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola asarifolia bracteata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrum sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola lobata integrifolia | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Elymus glaucus | 7% | 16 | 1 | 12 | 11 | 1.9 | 2.9 | .7 | 1.5 |
| Carex sp. | 7% | 15 | 1 | 3 | 2 | 1.3 | .6 | .2 | .3 |
| Bromus carinatus | 6% | 14 | 1 | 5 | 4 | 1.7 | 1.3 | .3 | .7 |
| Festuca subulata | 6% | 13 | 1 | 35 | 34 | 3.8 | 9.4 | 2.6 | 5.7 |
| Melica subulata | 6% | 13 | 1 | 5 | 4 | 1.5 | 1.2 | .3 | .7 |
| ~~Bromus marginatus~~ =BRCA | 5% | 12 | 1 | 35 | 34 | 4.8 | 9.8 | 2.8 | 6.2 |
| Calamagrostis koelerioides | 4% | 9 | 1 | 8 | 7 | 1.8 | 2.3 | .8 | 1.8 |
| Festuca occidentalis | 3% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus sp. | 1% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus suksdorfii | 1% | 3 | 1 | 8 | 7 | 3.3 | 4.0 | 2.3 | 10.0 |
| Festuca sp. | 0% | 2 | 2 | 4 | 2 | 3.0 | 1.4 | 1.0 | 12.7 |
| Luzula comosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa bolanderi | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus breviaristatus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus vulgaris | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dactylis glomerata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca subuliflora | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica harfordii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa compressa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# WHITE FIR SERIES



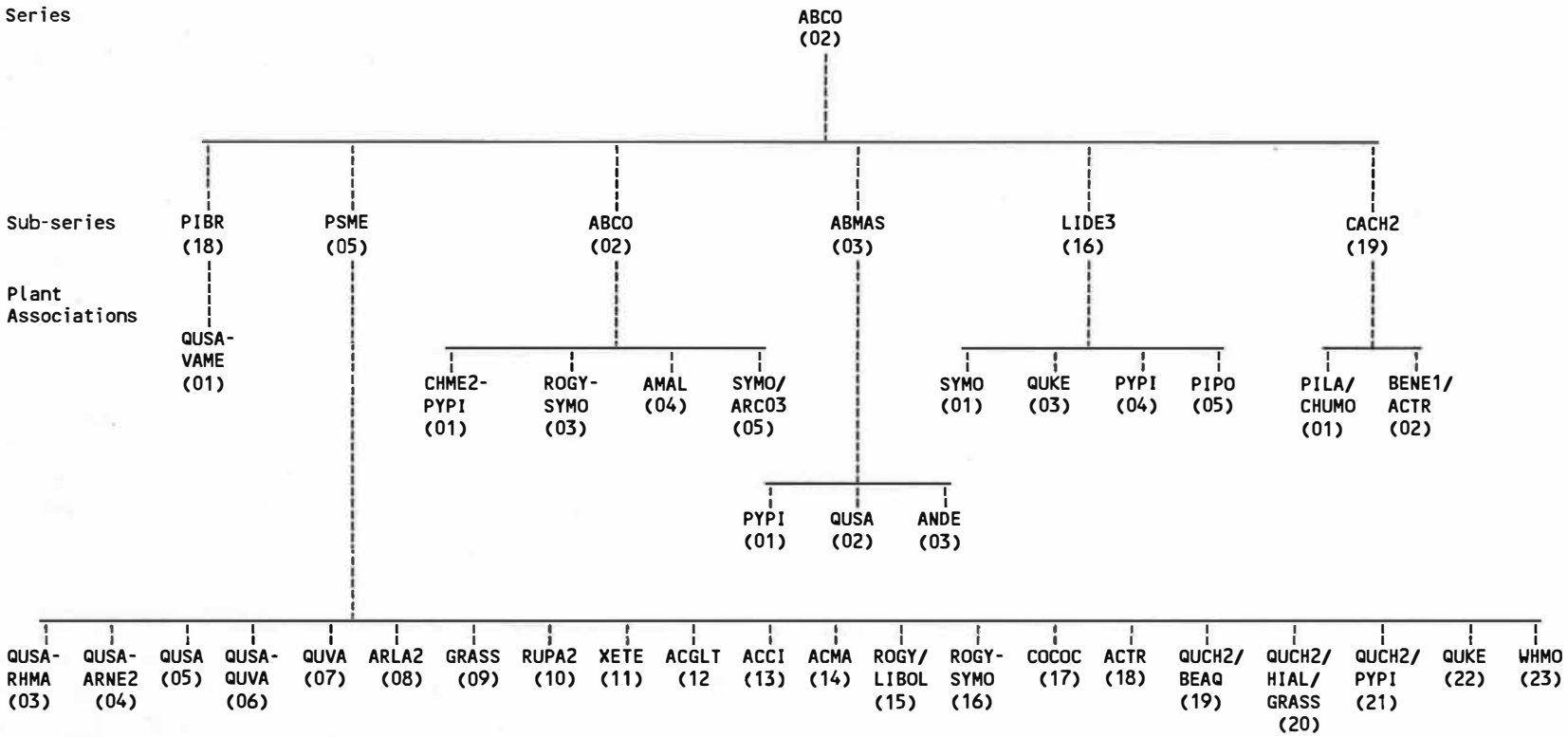



Figure 1. Dendrogram of plant associations within the white fir series.

Table 1. Confirmed locations of white fir-tanoak, white fir-white fir, and white fir-red fir sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | X | | X |
| ORLEANS RD | X | X | X | | | X |
| LOWER TRINITY RD | X | X | X | X | | X |
| MAD RIVER RD | X | X | X | X | | X |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | | X | | | |
| HAPPY CAMP RD | X | X | X | | | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | X |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | X | X | X | | X |
| YOLLA BOLLA RD | | X | | X | | |
| BIG BAR RD | X | | | | | X |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | X | | | X | X |
| COVELO RD | | X | X | X | | X |
| STONYFORD RD | | X | X | | X | X |
| UPPER LAKE RD | | X | | | X | |

Table 2. Comparison of environment and soil variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| NUMBER OF PLOTS | 19 | 34 | 31 | 9 | 5 | 22 |
| **ENVIRONMENT:** | | | | | | |
| ELEVATION (ft) | 3945 | 5385 | 5107 | 5220 | 5304 | 5562 |
| ASPECT | N. WEST<br>S. WEST | N. EAST, WEST,<br>S. EAST | EAST, WEST | WEST | N. EAST | N. EAST<br>SOUTH |
| SLOPE (%) | 48 | 25 | 33 | 24 | 42 | 27 |
| RADIATION INDEX | .440 | .453 | .458 | .467 | .401 | .463 |
| SURFACE ROCK(%) | 4 | 1 | 1 | <1 | 5 | 4 |
| **SOILS:** | | | | | | |
| SOIL DEPTH (in) | 37 | 34 | 39 | 36 | 32 | 34 |
| AWC (in) | 3.3 | 3.5 | 3.9 | 3.2 | 2.3 | 3.6 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 7 | 11 | 14 | 16 | 11 | 13 |
| CO. FRAG. (%) | 41 | 27 | 32 | 31 | 58 | 33 |
| COLOR | very dark brown, dark brown, very dark grayish brown, dark yellowish brown | dark brown, dark yellowish brown, very dark brown, black | very dark brown, dark brown, dark yellowish brown, dark brown, black | very dark brown, dark yellowish brown, very dark grayish brown | dark brown | very dark brown, dark yellowish brown, dark brown, very dark grayish brown |
| TEXTURE | vgl, xgl, gsl, vgsl | gl, l, gsl, vgsl | gl, vgl, gsl, l, sl | gl, vkl | gl, gsl | gl, vgl, vkl, l |
| PARENT MATERIAL | mafic, sandstone, granite | sandstone, schist, phyllite, mixed | granite, mafic, phyllite, schist, sandstone, mixed | sandstone, granite, schist, phyllite | mixed | schist, granite, mafic, greenstone |
| SOIL FAMILY | Clallam, Coyata, Skalan | Kafing, Yollabolly, Althouse | Yollabolly, Kafing, Hugo, Doty, Bins | Kafing, Nanny | Neans | Yollabolly, Althouse, Bins |

Table 3. Comparison of stand structure variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| NUMBER OF PLOTS | 9 | 13 | 17 | 5 | 5 | 14 |
| STAND AGE | 268 | 162 | 165 | 115 | 329 | 177 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 10470 | 13729 | 15128 | 8544 | 10134 | 14258 |
| BASAL AREA ($ft^2$) | 278 | 388 | 380 | 316 | 323 | 378 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 150 | 0 | 18 | 0 | 221 | 0 |
| BASAL AREA ($ft^2$) | 7 | 0 | 1 | 0 | 13 | 0 |
| SITE CLASS | 1, 2 | 1A-2 | 1A-2 | 2-3 | 2-3 | 1-3 |
| SITE INDEX | 150-175 | 150-200 | 150-200 | 125-150 | 125-150 | 125-175 |
| STAND DENSITY INDEX | 383 | 543 | 529 | 491 | 506 | 514 |

Table 4. Comparison of vegetation variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 95 | 78 | 86 | 92 | 68 | 79 |
| GRASS COVER | 1 | 1 | <1 | <1 | <1 | <1 |
| FORB COVER | 23 | 1 | 14 | 1 | 1 | 4 |
| SHRUB COVER | 9 | 1 | 7 | 9 | 1 | 3 |
| TREE COVER | 85 | 77 | 76 | 85 | 70 | 74 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 23 (100) | 74 (100) | 74 (100) | 73 (100) | 33 (100) | 58 (100) |
| DOUGLAS-FIR | 47 (100) | 10 (34) | 8 (18) | 14 (44) | 35 (100) | 8 (36) |
| SUGAR PINE | 7 (25) | 7 (21) | 4 (12) | 13 (22) | 6 (60) | 7 (13) |
| INCENSE CEDAR | | 1 (12) | 3 (30) | 2 (11) | 5 (20) | 4 (13) |
| CHINQUAPIN | 2 (30) | | 5 (9) | | | |
| PACIFIC DOGWOOD | | | 4 (6) | | | |
| RED FIR | 1 (5) | | 2 (9) | | | 14 (100) |
| BLACK OAK | 5 (10) | | 15 (3) | 1 (11) | 1 (20) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| PACIFIC MADRONE | 17 (30) | | | | | |
| BIGLEAF MAPLE | 5 (5) | | | | | |
| TANOAK | 9 (90) | | | | | |
| JEFFREY PINE | | 1 (2) | | 7 (22) | | |
| PORT-ORFORD CEDAR | | | | | | |
| BREWER'S SPRUCE | 1 (5) | | | | | 1 (4) |
| PACIFIC YEW | 3 (5) | | | | | |
| CANYON LIVE OAK | 3 (30) | | | | | |
| PONDEROSA PINE | | | | | 10 (20) | |
| WESTERN WHITE PINE | 5(5) | | | | | 3 (4) |
| OREGON WHITE OAK | | | | 2 (11) | | |

Table 4. Comparison of vegetation variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 3 (90) | 2 (90) | 2 (93) | 1 (100) | 4 (100) | 2 (95) |
| DOUGLAS-FIR | 1 (70) | 1 (14) | 1 (9) | 1 (44) | 1 (60) | 1 (9) |
| INCENSE CEDAR | | 1 (29) | 1 (27) | | 1 (40) | 1 (4) |
| CHINQUAPIN | 5 (30) | | 1 (15) | 1 (11) | | |
| PACIFIC DOGWOOD | 2 (10) | 4 (2) | 4 (15) | | | |
| CANYON LIVE OAK | 2 (55) | 1 (26) | 1 (12) | 1 (33) | 1 (40) | |
| SUGAR PINE | 1 (14) | 1 (7) | 1 (9) | 1 (22) | 1 (40) | 1 (4) |
| TANOAK | 18 (100) | 1 (2) | 2 (3) | | | |
| RED FIR | 1 (5) | | 1 (3) | | | 1 (54) |
| PACIFIC YEW | 7 (14) | | 1 (3) | | | |
| BLACK OAK | 1 (5) | 1 (7) | 1 (6) | | 1 (20) | 1 (4) |
| CASCARA | | | 2 (9) | | | |
| PACIFIC MADRONE | 1 (25) | | | | | |
| BIGLEAF MAPLE | 2 (5) | | 1 (3) | 1 (11) | | |
| PORT-ORFORD CEDAR | | | | | | |
| BREWER'S SPRUCE | 2 (5) | | | | | |
| JEFFREY PINE | | | | | | |
| WESTERN WHITE PINE | 5 (5) | | | | | 1 (4) |
| OREGON WHITE OAK | | 1 (2) | | 1 (11) | | |

Table 4. Comparison of vegetation variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 1 (80) | 1 (36) | 1 (60) | 4 (22) | 1 (40) | 1 (45) |
| CREEPING SNOWBERRY | 1 (55) | 2 (46) | 2 (90) | 2 (55) | 1 (100) | 2 (40) |
| HAZELNUT | 5 (40) | 1 (4) | 5 (48) | 4 (11) | | 2 (9) |
| DWARF OREGON-GRAPE | 6 (75) | 1 (19) | 2 (12) | | | 2 (9) |
| SADLER OAK | | | 1 (18) | 1 (11) | | 2 (9) |
| TRAILING BLACKBERRY | 1 (30) | 1 (2) | 4 (33) | | | 1 (4) |
| HUCKLEBERRY OAK | 2 (5) | 2 (4) | 1 (9) | 4 (55) | | 1 (13) |
| THIMBLEBERRY | 2 (5) | | 2 (9) | | | |
| OREGON BOXWOOD | 1 (25) | 1 (9) | 3 (18) | 5 (11) | | 1 (4) |
| MOUNTAIN MAPLE | 1 (14) | | 1 (18) | | | 11 (9) |
| OCEANSPRAY | 2 (25) | | 9 (9) | | | 2 (4) |
| RED HUCKLEBERRY | 5 (5) | | | | | |
| PINEMAT MANZANITA | 1 (5) | | | 3 (11) | 1 (20) | 2 (9) |
| SERVICEBERRY | 1 (10) | 1 (11) | 1 (15) | 6 (99) | 1 (20) | 1 (4) |
| DESERT GOOSEBERRY | | 1 (2) | 1 (12) | | | 1 (4) |
| THIN-LEAVED HUCKLEBERRY | | | | | | |

Table 4. Comparison of vegetation variables by plant association in the white fir-tanoak, white fir-white fir, and white fir-red fir sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-LIDE2/BENE1 | ABCO/CHME2-PYPI | ABCO/ROGY-SYMO | ABCO/AMAL | ABCO/SYMO/ARCO3 | ABCO-ABMAS/PYPI |
| HERBS & GRASSES (% COVER) (CONSTANCY) | | | | | | |
| PRINCE'S PINE | 6 (45) | 2 (7) | 1 (42) | 1 (22) | | 5 (31) |
| WHITE-VEINED WINTERGREEN | 1 (55) | 1 (80) | 3 (45) | 1 (55) | 1 (60) | 1 (72) |
| VANILLALEAF | 8 (50) | | 10 (42) | | | |
| HOOKER'S FAIRYBELL | 1 (50) | 1 (14) | 1 (45) | 1 (11) | | 1 (27) |
| RATTLESNAKE PLANTAIN | 1 (50) | 1 (4) | 1 (12) | 1 (11) | | 1 (9) |
| HAWKWEED | 1 (30) | 1 (12) | 1 (33) | | 1 (60) | 1 (13) |
| TRAILPLANT | 1 (40) | 1 (9) | 1 (36) | | 1 (20) | 1 (22) |
| STARFLOWER | 1 (30) | | 1 (24) | 1 (11) | | 1 (9) |
| LITTLE PRINCE'S PINE | 1 (35) | 1 (56) | 1 (30) | 1 (44) | 1 (40) | 1 (36) |
| BRACKENFERN | 2 (14) | 3 (12) | 9 (39) | | | 1 (27) |
| SMALL BEDSTRAW | 1 (20) | | 1 (42) | 1 (11) | 1 (20) | 1 (18) |
| WESTERN MODESTY | 14 (70) | | | | | |
| IRIS | 1 (60) | 1 (4) | 1 (9) | 1 (11) | 1 (20) | 1 (4) |
| TWINFLOWER | 13 (20) | | | | | |
| STREAM VIOLET | 1 (25) | | 1 (27) | | | 2 (4) |
| CALIFORNIA HAREBELL | 1 (10) | | 1 (9) | | 1 (20) | 1 (4) |
| ONE-SIDED WINTERGREEN | | 1 (7) | 1 (12) | | | 1 (27) |
| SWORDFERN | 1 (50) | 1 (2) | 1 (6) | 1 (11) | | 1 (4) |
| WHITE INSIDE-OUT FLOWER | 1 (5) | | 8 (18) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VINE MAPLE | | | 1 (6) | | | |
| SNOWBERRY | | | | | | |
| BLACKCAP | | | | | | |
| SLENDER SALAL | 10 (5) | | | | | |
| BITTER CHERRY | | | 1 (6) | | | |
| POISON OAK | 1 (5) | | | | | |
| GREENLEAF MANZANITA | | | | | | |
| TALL OREGON-GRAPE | 1 (5) | | 1 (3) | | | |
| DEERBRUSH | 1 (5) | | | | | |
| STICKY CURRANT | | 1 (2) | 1 (12) | | | |
| LOBB'S GOOSEBERRY | | | 1 (15) | | | 1 (13) |
| RED-FLOWERING CURRANT | | 1 (4) | | | | |
| SNOWBRUSH | | | 1 (3) | | | |
| PACIFIC RHODODENDRON | | | | | | |
| NUTALL WILLOW | | | | | | |
| PYGMY HOLLYGRAPE | | 1 (2) | | | 1 (60) | |
| CREEPING OREGON-GRAPE | | | | | | |
| SITKA ALDER | | | | | | |
| SQUAWCARPET | | | | | | |
| BOXLEAF SILKTASSEL | 1 (5) | | | | | |
| CALIFORNIA MOUNTAIN ASH | | | | 1 (11) | | 2 (4) |

| | | | | | | |
|---|---|---|---|---|---|---|
| FALSE SOLOMON'S SEAL | 1 (14) | 1 (2) | 1 (33) | 1 (33) | 1 (20) | 1 (18) |
| MOUNTAIN DOGBANE | 1 (20) | 1 (4) | | 1 (11) | | 1 (4) |
| QUEEN'S CUP | | | 5 (15) | | | 1 (4) |
| THREE-LEAVED ANEMONE | | | 1 (27) | | | 1 (13) |
| STICKY STARWORT | 1 (5) | 1 (14) | 1 (33) | 1 (11) | | 1 (27) |
| RAYLESS ARNICA | 1 (20) | 1 (4) | | | | 1 (9) |
| SHELTON'S VIOLET | 1 (5) | 1 (17) | 1 (42) | 1 (22) | 1 (20) | 1 (36) |
| WHITE TRILLIUM | 1 (5) | | 1 (18) | 1 (22) | | 1 (13) |
| BEARGRASS | | | | | | 9 (9) |
| WILD STRAWBERRY | | | 1 (9) | | | 1 (4) |
| SWEET CICELY | | 1 (4) | 1 (21) | 1 (11) | 1 (20) | 1 (4) |
| TONGUE-LEAVED PENSTEMON | | | 3 (15) | 1 (22) | | 1 (13) |
| WASHINGTON LILY | 1 (25) | 1 (2) | 1 (24) | | | |
| CORALROOT | 1 (14) | 1 (7) | 1 (3) | | | 1 (4) |
| PHANTOM ORCHID | 1 (20) | 1 (17) | 1 (3) | | 1 (20) | 1 (4) |
| STRIPED CORALROOT | 1 (10) | 1 (4) | 1 (6) | | | 1 (9) |
| REDWOOD VIOLET | 2 (10) | | | | | |
| STARRY SOLOMON'S SEAL | | | 1 (12) | 1 (22) | | 1 (9) |
| WOODLAND PHLOX | 1 (10) | | | | | |
| SCOULER'S HAREBELL | 2 (14) | 1 (7) | 1 (3) | | | |
| SPOTTED CORALROOT | 1 (5) | | 1 (3) | | | |
| DOGBANE | | 1 (4) | | | 1 (40) | |
| VETCH | | | 1 (3) | | | |
| PEAVINE | 1 (10) | 1 (2) | 1 (3) | | | |
| KELLOGIA | | 1 (2) | | | | 1 (4) |

| | | | | | | |
|---|---|---|---|---|---|---|
| REDWOOD IVY | 11 (30) | | | | | |
| TOOTHED WINTERGREEN | 1 (5) | 1 (4) | 1 (3) | | | |
| BEDSTRAW | 1 (5) | | 1 (12) | | | 1 (4) |
| SHARP-TOOTHED ANGELICA | | | | | | |
| PACIFIC HOUND'S TONGUE | | 1 (7) | 1 (3) | | | |
| LUPINE | | | | | | |
| FAIRY-SLIPPER | 1 (20) | | | | | 1 (4) |
| WESTERN VIOLET | | | 1 (3) | | | |
| PINEDROPS | | 1 (4) | | | | |
| CALIFORNIA FALSE HELLEBORE | | | 1 (6) | 1 (11) | | |
| TWAYBLADE | | | | 1 (11) | | |
| HEART-LEAVED ARNICA | 1 (10) | | | | 2 (100) | |
| BROAD-LEAVED ARNICA | | | | | | |
| SMALL-FLOWERED NEMOPHILA | | | | 1 (11) | | |
| SNOWPLANT | | | | | | |
| WESTERN WOOD VIOLET | | | | | | |
| VARIED-LEAF COLLOMIA | | | | | | |
| HILL STAR | | | | 1 (11) | | |
| DEERVETCH | | | | | | |
| VARIED-LEAF MITREWORT | | | 3 (3) | 1 (11) | | |
| LEAFLESS WINTERGREEN | 1 (5) | | | | | 1 (9) |
| SUGAR-SCOOP | | | | | | |
| AMERICAN VETCH | | | | | | |
| VIOLET | | | | | | |
| BANEBERRY | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SPREADING DOGBANE | | | | | | |
| MARBLED WILD GINGER | 1 (5) | | | | | 1 (4) |
| CALIFORNIA TOOTHWORT | | | 1 (3) | | | |
| RED COLUMBINE | | | 1 (9) | | | |
| ARNICA | | | | | | |
| WILD GINGER | | | | | | |
| CALIFORNIA FAWN-LILY | | | | | | |
| SIBERIAN MONTIA | | | 1 (6) | | | 1 (4) |
| IMBRICATE SWORDFERN | | | | | | |
| WESTERN FESCUE | 1 (10) | | 1 (15) | 1 (11) | 1 (40) | 1 (9) |
| LARGE MOUNTAIN BROME | 1 (20) | 1 (12) | | | | 2 (4) |
| FIRE REEDGRASS | 1 (5) | 1 (4) | 1 (12) | | | |
| ALASKA ONIONGRASS | | 1 (14) | 1 (15) | | 1 (20) | 1 (4) |
| SUKSDORF'S BROME | | | 1 (12) | | | |
| BLUE WILDRYE | 1 (5) | | 1 (12) | 2 (11) | | 1 (9) |
| SEDGE | | | 1 (3) | | | |
| BEARDED FESCUE | 1 (5) | 1 (2) | 1 (3) | | | 5 (4) |
| CRINKLEAWN FESCUE | 2 (14) | 2 (4) | | | | |
| BROME | 1 (5) | | | | | |
| CALIFORNIA BROME | | | 2 (3) | | | |
| HARFORD'S ONIONGRASS | | 1 (7) | | | | |
| CALIFORNIA FESCUE | | | 2 (3) | | | |

Table 5. Confirmed locations of white fir-red fir and white fir-Douglas-fir sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/RHMA-QUSA | ABCO-PSME/QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/QUSA-QUVA |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | | X | | X | X |
| ORLEANS RD | X | X | X | X | X | X |
| LOWER TRINITY RD | X | X | X | X | X | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | X | X | X |
| HAPPY CAMP RD | X | X | | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | X | | | | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | | | | | |
| YOLLA BOLLA RD | | | | | | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | | | | | |
| COVELO RD | | | | | | |
| STONYFORD RD | | | | | | |
| UPPER LAKE RD | | | | | | |

T Comparison of environment and soil variables by plant associatio e white fir-red fir and white fir-Douglas-fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/ QUSA-QUVA |
| NUMBER OF PLOTS | 19 | 14 | 18 | 13 | 43 | 42 |
| **ENVIRONMENT:** ELEVATION (ft) | 4957 | 5398 | 4190 | 4468 | 4356 | 4226 |
| ASPECT | NORTH, SOUTH | S. WEST | NORTH | EAST, WEST, S. WEST | N. WEST, S. EAST | NORTH, N. WEST, S. EAST, WEST |
| SLOPE (%) | 30 | 31 | 46 | 40 | 39 | 42 |
| RADIATION INDEX | .447 | .498 | .345 | .480 | .450 | .430 |
| SURFACE ROCK(%) | 6 | 2 | 8 | 6 | 5 | 16 |
| **SOILS:** SOIL DEPTH (in) | 28 | 29 | 36 | 35 | 34 | 30 |
| AWC (in) | 2.5 | 2.8 | 3.7 | 2.8 | 3.3 | 2.3 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 8 | 10 | 9 | 7 | 9 | 6 |
| CO. FRAG. (%) | 36 | 30 | 29 | 38 | 37 | 48 |
| COLOR | dark brown, dark reddish brown, very dark brown | dark brown, dark reddish brown, very dark brown, very dark grayish brown | dark brown, dark yellowish brown, very dark gray | dark brown, dark yellowish brown | dark brown, dark yellowish brown, dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown |
| TEXTURE | vgl, vgsl, gl | vgl, gl, gcl, gscl | gl | gl, vgsl | gl, vgl, l, vgsl | vgl, xgl, gl, vkl |
| PARENT MATERIAL | granite, schist, greenstone | granite, mafic | phyllite, schist | mafic, granite, quartzite | granite, mafic, greenstone, phyllite, schist | mafic, serpentine, granite, greenstone |
| SOIL FAMILY | Althouse, Inville, Bins | Althouse, Bins, Nanny | Althouse, Clallam, Bentpeak | Althouse, Clallam | Althouse,Jumpe Clallam, Hugo, Bentpeak, Kafing, Bins,Deadwood | Clallam, Althouse, Deadwood |

Table 7. Comparison of stand structure variables by plant association in the white fir-red fir and white fir-Douglas-fir sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/ RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/ QUSA-QUVA |
| NUMBER OF PLOTS | 14 | 13 | 12 | 10 | 34 | 33 |
| STAND AGE | 241 | 245 | 272 | 323 | 275 | 315 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 11049 | 12090 | 10170 | 8898 | 11768 | 9398 |
| BASAL AREA ($ft^2$) | 311 | 320 | 289 | 264 | 317 | 282 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 103 | 0 | 77 | 53 |
| BASAL AREA ($ft^2$) | 0 | 0 | 5 | 0 | 4 | 3 |
| SITE CLASS | 1-2 | 1A-2 | 1A-3 | 3, 4 | 1A-2 | 1A-4 |
| SITE INDEX | 150-175 | 150-200 | 125-200 | 100-125 | 150-200 | 100-200 |
| STAND DENSITY INDEX | 443 | 438 | 409 | 373 | 435 | 409 |

Table 8. Comparison of vegetation variables by plant association in the white fir-red fir and white fir-Douglas-fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/ RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/ QUSA-QUVA |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 92 | 94 | 94 | 87 | 95 | 92 |
| GRASS COVER | 2 | 2 | <1 | <1 | <1 | 3 |
| FORB COVER | 14 | 37 | 18 | 5 | 20 | 14 |
| SHRUB COVER | 22 | 21 | 62 | 46 | 44 | 38 |
| TREE COVER | 74 | 77 | 67 | 59 | 73 | 72 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 51 (100) | 51 (100) | 20 (100) | 22 (100) | 34 (100) | 21 (100) |
| DOUGLAS-FIR | 12 (77) | 11 (50) | 40 (100) | 25 (100) | 34 (97) | 36 (97) |
| SUGAR PINE | 8 (27) | | 10 (83) | 17 (92) | 8 (46) | 11 (64) |
| INCENSE CEDAR | 6 (38) | 10 (64) | | 7 (46) | 9 (4) | 9 (57) |
| CHINQUAPIN | | 2 (7) | 9 (27) | 11 (23) | 10 (26) | 4 (11) |
| PACIFIC DOGWOOD | | | 4 (11) | | 6 (4) | 3 (4) |
| RED FIR | 12 (94) | 15 (100) | 1 (5) | 3 (30) | 3 (26) | 4 (19) |
| BLACK OAK | | | | | | |
| PACIFIC MADRONE | | | | | 3 (2) | |
| BIGLEAF MAPLE | 1 (5) | | | | | |
| TANOAK | | | 5 (5) | 1 (7) | 3 (2) | 2 (2) |
| JEFFREY PINE | | | | 10 (7) | 2 (2) | 6 (11) |
| PORT-ORFORD CEDAR | 5 (11) | | | 2 (7) | 2 (7) | 6 (23) |
| BREWER'S SPRUCE | 5 (5) | | | 3 (7) | 5 (2) | 4 (19) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PACIFIC YEW | | | 1 (5) | | 3 (7) | 3 (2) |
| CANYON LIVE OAK | | | | | 5 (2) | 5 (2) |
| PONDEROSA PINE | | | | 10 (7) | | |
| WESTERN WHITE PINE | 2 (11) | | | | | 5 (11) |
| OREGON WHITE OAK | | | | | | |

Table 8. Comparison of vegetation variables by plant association in the white fir-red fir and white fir-Douglas-fir sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/ RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCOPSME/ QUSA-QUVA |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 4 (94) | 5 (100) | 5 (94) | 4 (100) | 7 (95) | 4 (97) |
| DOUGLAS-FIR | 1 (38) | 1 (14) | 1 (50) | 1 (61) | 2 (51) | 1 (50) |
| INCENSE CEDAR | 2 (33) | 1 (57) | | 1 (30) | 1 (17) | 1 (50) |
| CHINQUAPIN | | 1 (14) | 4 (44) | 12 (30) | 5 (41) | 3 (33) |
| PACIFIC DOGWOOD | | | 2 (11) | | 3 (29) | 2 (11) |
| CANYON LIVE OAK | 1 (5) | 1 (7) | 2 (33) | | 1 (2) | 1 (7) |
| SUGAR PINE | 1 (5) | | 2 (33) | 1 (61) | 1 (14) | 1 (26) |
| TANOAK | | | 3 (22) | 1 (7) | 2 (4) | 11 (9) |
| RED FIR | 2 (77) | 3 (100) | | 1 (38) | 5 (14) | 1 (14) |
| PACIFIC YEW | 1 (5) | | | | 4 (12) | 3 (23) |
| BLACK OAK | | | | | | 1 (4) |
| CASCARA | 3 (5) | | | | 1 (7) | 1 (2) |
| PACIFIC MADRONE | | | | | 2 (7) | 1 (2) |
| BIGLEAF MAPLE | | | | | | |
| PORT-ORFORD CEDAR | 1 (11) | | | | 1 (7) | 1 (7) |
| BREWER'S SPRUCE | | | | | 1 (2) | 3 (11) |
| JEFFREY PINE | | | | | | 1 (7) |
| WESTERN WHITE PINE | | | | | | 1 (7) |
| OREGON WHITE OAK | | | | | | |

Table 8. Comparison of vegetation variables by plant association in the white fir-red fir and white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/ RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/ QUSA-QUVA |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 3 (66) | 3 (78) | 1 (44) | 2 (15) | 2 (60) | 2 (35) |
| CREEPING SNOWBERRY | 2 (77) | 5 (92) | 1 (27) | 2 (7) | 1 (39) | 2 (28) |
| HAZELNUT | 3 (27) | 2 (14) | 1 (5) | 7 (23) | 3 (31) | 3 (19) |
| DWARF OREGON-GRAPE | 2 (27) | 2 (14) | 14 (50) | 2 (7) | 7 (36) | 3 (47) |
| SADLER OAK | 12 (100) | 4 (14) | 17 (94) | 21 (100) | 38 (100) | 9 (100) |
| TRAILING BLACKBERRY | 2 (38) | 2 (14) | 2 (11) | 1 (23) | 1 (43) | 1 (45) |
| HUCKLEBERRY OAK | 5 (33) | 1 (14) | 6 (11) | 12 (69) | 2 (12) | 19 (100) |
| THIMBLEBERRY | 1 (5) | 10 (57) | 1 (5) | | 2 (14) | 2 (19) |
| OREGON BOXWOOD | 11 (27) | 4 (7) | 5 (55) | 2 (7) | 4 (46) | 1 (26) |
| MOUNTAIN MAPLE | 5 (16) | 4 (35) | 1 (5) | | 3 (29) | 2 (19) |
| OCEANSPRAY | 2 (11) | | 2 (33) | 2 (7) | 1 (12) | 3 (19) |
| RED HUCKLEBERRY | 1 (5) | | 5 (22) | | 3 (7) | 5 (28) |
| PINEMAT MANZANITA | 5 (16) | | 1 (5) | 16 (100) | 7 (9) | 7 (45) |
| SERVICEBERRY | 1 (45) | 1 (21) | | 4 (14) | 1 (16) | 3 (41) |
| DESERT GOOSEBERRY | | 3 (35) | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| THIN-LEAVED HUCKLEBERRY | 2 (11) | 20 (14) | 2 (27) | 1 (7) | 2 (12) | 5 (11) |
| VINE MAPLE | 1 (5) | | | | | 1 (2) |
| SNOWBERRY | | | | | 1 (9) | 1 (2) |
| BLACKCAP | | | | | 1 (9) | 1 (2) |
| SLENDER SALAL | | | 4 (55) | | 9 (9) | 7 (7) |
| BITTER CHERRY | 1 (11) | | | 2 (7) | | 2 (9) |
| POISON OAK | | | | | | |
| GREENLEAF MANZANITA | 1 (11) | | 2 (5) | 2 (53) | 1 (2) | 3 (16) |
| TALL OREGON-GRAPE | | | | | | 1 (2) |
| DEERBRUSH | | | | | 2 (2) | |
| STICKY CURRANT | | 6 (50) | | | 1 (7) | 1 (4) |
| LOBB'S GOOSEBERRY | | 1 (7) | | | | 1 (7) |
| RED-FLOWERING CURRANT | | 1 (14) | | | 1 (2) | 1 (4) |
| SNOWBRUSH | | | | 1 (23) | 1 (2) | 1 (4) |
| PACIFIC RHODODENDRON | | | 43 (100) | | | |
| NUTALL WILLOW | | | | | | 1 (2) |
| PYGMY HOLLYGRAPE | | | | | 2 (2) | 3 (9) |
| CREEPING OREGON-GRAPE | | | | | | 1 (9) |
| SITKA ALDER | 3 (5) | | | | | |
| SQUAWCARPET | | | | | | 1 (2) |
| BOXLEAF SILKTASSEL | | | | | | 2 (7) |
| CALIFORNIA MOUNTAIN ASH | | 1 (7) | | | 1 (2) | |

Table 8. Comparison of vegetation variables by plant association in the white fir-red fir and white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-ABMAS/QUSA | ABCO-ABMAS/ANDE | ABCO-PSME/ RHMA-QUSA | ABCO-PSME/ QUSA-ARNE2 | ABCO-PSME/QUSA | ABCO-PSME/ QUSA-QUVA |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| PRINCE'S PINE | 6 (88) | 10 (85) | 3 (77) | 3 (92) | 5 (90) | 3 (97) |
| WHITE-VEINED WINTERGREEN | 1 (83) | 1 (85) | 1 (55) | 1 (38) | 1 (78) | 1 (50) |
| VANILLALEAF | 4 (44) | 5 (57) | 7 (38) | 1 (7) | 5 (56) | 3 (38) |
| HOOKER'S FAIRYBELL | 1 (38) | 1 (42) | 1 (27) | | 1 (36) | 1 (30) |
| RATTLESNAKE PLANTAIN | 1 (44) | 1 (57) | 1 (88) | 1 (7) | 1 (53) | 1 (47) |
| HAWKWEED | 1 (55) | 1 (71) | 1 (5) | 1 (30) | 1 (19) | 1 (38) |
| TRAILPLANT | 1 (27) | 8 (71) | 1 (11) | | 1 (14) | 1 (14) |
| STARFLOWER | 2 (11) | 2 (35) | 2 (16) | | 1 (21) | 1 (35) |
| LITTLE PRINCE'S PINE | 1 (61) | 1 (71) | 1 (50) | | 1 (21) | 1 (11) |
| BRACKENFERN | 3 (11) | 5 (42) | 2 (22) | 1 (7) | 1 (24) | 2 (19) |
| SMALL BEDSTRAW | 1 (22) | 1 (78) | 1 (5) | | 1 (7) | 1 (4) |
| WESTERN MODESTY | 40 (5) | | 1 (16) | 5 (7) | 5 (14) | 4 (30) |
| IRIS | 1 (22) | | 1 (5) | 1 (23) | 2 (24) | 1 (30) |
| TWINFLOWER | | 50 (7) | 10 (38) | | 16 (39) | 14 (30) |
| STREAM VIOLET | 1 (16) | 2 (64) | 1 (11) | | 1 (4) | |
| CALIFORNIA HAREBELL | 1 (5) | 1 (14) | 1 (16) | 1 (7) | 1 (14) | 1 (16) |
| ONE-SIDED WINTERGREEN | 1 (61) | 2 (78) | 1 (22) | 1 (15) | 1 (34) | 1 (7) |
| SWORDFERN | 1 (5) | | 1 (22) | 1 (7) | 1 (4) | 1 (30) |
| WHITE INSIDE-OUT FLOWER | 1 (11) | 1 (35) | 3 (11) | | 1 (17) | (14) |

| | | | | | | |
|---|---|---|---|---|---|---|
| FALSE SOLOMON'S SEAL | | 1 (21) | 1 (11) | | 1 (9) | 1 (7) |
| MOUNTAIN DOGBANE | 1 (22) | 2 (7) | 1 (11) | 2 (46) | 1 (14) | 1 (38) |
| QUEEN'S CUP | 1 (22) | 3 (50) | 2 (27) | 1 (7) | 2 (34) | 1 (11) |
| THREE-LEAVED ANEMONE | 5 (44) | 7 (92) | | 1 (7) | 1 (14) | 1 (16) |
| STICKY STARWORT | 1 (22) | 2 (57) | 1 (11) | 1 (7) | 1 (7) | 1 (4) |
| RAYLESS ARNICA | 6 (11) | | 1 (22) | 1 (30) | 1 (17) | 2 (14) |
| SHELTON'S VIOLET | 1 (11) | 1 (28) | | | 1 (2) | |
| WHITE TRILLIUM | 1 (33) | 1 (14) | 1 (11) | | 1 (4) | 1 (2) |
| BEARGRASS | 1 (5) | | 9 (61) | 10 (7) | 1 (12) | 8 (30) |
| WILD STRAWBERRY | 1 (16) | 2 (21) | | | 3 (4) | |
| SWEET CICELY | 1 (11) | 2 (28) | | 1 (7) | 1 (2) | 1 (2) |
| TONGUE-LEAVED PENSTEMON | 1 (5) | 2 (42) | | | 1 (7) | 2 (4) |
| WASHINGTON LILY | 1 (27) | 1 (21) | 1 (16) | 1 (7) | 1 (9) | 1 (7) |
| CORALROOT | 1 (5) | 1 (21) | 1 (5) | 1 (7) | 1 (9) | 1 (2) |
| PHANTOM ORCHID | 1 (5) | | 1 (5) | | 1 (4) | |
| STRIPED CORALROOT | | | 1 (11) | | 1 (14) | 1 (14) |
| REDWOOD VIOLET | | | 1 (33) | | 1 (7) | 1 (2) |
| STARRY SOLOMON'S SEAL | 1 (11) | 1 (7) | | | 2 (2) | 1 (4) |
| WOODLAND PHLOX | | 2 (7) | | | | 1 (4) |
| SCOULER'S HAREBELL | 3 (11) | 5 (7) | 1 (11) | | 1 (2) | |
| SPOTTED CORALROOT | 1 (11) | | 1 (27) | | 1 (2) | 1 (4) |
| DOGBANE | 1 (5) | | | | 1 (17) | 1 (9) |
| VETCH | 1 (5) | 1 (7) | | | | 2 (9) |
| PEAVINE | | 1 (7) | | | 2 (2) | 1 (9) |
| KELLOGIA | 1 (5) | 1 (7) | | | 1 (2) | 1 (2) |

| | | | | | | |
|---|---|---|---|---|---|---|
| REDWOOD IVY | | | 35 (5) | | 15 (2) | |
| TOOTHED WINTERGREEN | | | 1 (5) | 1 (7) | 1 (4) | 1 (21) |
| BEDSTRAW | | | | | | 2 (2) |
| SHARP-TOOTHED ANGELICA | | 1 (14) | | | | 1 (11) |
| PACIFIC HOUND'S TONGUE | | | | | | |
| LUPINE | 1 (3) | 2 (28) | 2 (22) | 2 (7) | 4 (4) | 1 (4) |
| FAIRY-SLIPPER | 1 (5) | 1 (7) | | | | 1 (2) |
| WESTERN VIOLET | | 1 (7) | | | | 1 (2) |
| PINEDROPS | | | 1 (5) | | 1 (2) | |
| CALIFORNIA FALSE HELLEBORE | | | | | | |
| TWAYBLADE | | 1 (7) | 1 (5) | | 1 (2) | 1 (2) |
| HEART-LEAVED ARNICA | | | 1 (5) | | | |
| BROAD-LEAVED ARNICA | | 17 (14) | | | | 1 (2) |
| SMALL-FLOWERED NEMOPHILA | | | | | | |
| SNOWPLANT | | | | 1 (7) | 1 (2) | 1 (4) |
| WESTERN WOOD VIOLET | 1 (5) | | | | 1 (2) | |
| VARIED-LEAF COLLOMIA | | | | | | |
| HILL STAR | | | | | | |
| DEERVETCH | | | | 2 (15) | | 2 (2) |
| VARIED-LEAF MITREWORT | | | | | | |
| LEAFLESS WINTERGREEN | | | | | | 1 (2) |
| SUGAR-SCOOP | | | | | 1 (2) | 1 (2) |
| AMERICAN VETCH | | | | | | |
| VIOLET | | | | | | |
| BANEBERRY | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SPREADING DOGBANE | | | | | | 2 (4) |
| MARBLED WILD GINGER | | 1 (7) | | | | |
| CALIFORNIA TOOTHWORT | | | | | | |
| RED COLUMBINE | | 1 (7) | | 1 (7) | | |
| ARNICA | | | | | 5 (2) | 1 (2) |
| WILD GINGER | 3 (5) | 1 (14) | | | 1 (2) | |
| CALIFORNIA FAWN-LILY | | | | | | |
| SIBERIAN MONTIA | | | | | | |
| IMBRICATE SWORDFERN | | | | | | 1 (2) |
| WESTERN FESCUE | 2 (5) | 1 (14) | 2 (11) | | 2 (12) | 1 (23) |
| LARGE MOUNTAIN BROME | 2 (5) | 2 (35) | | | 1 (2) | 1 (7) |
| FIRE REEDGRASS | 2 (5) | 1 (35) | | 1 (7) | 1 (2) | |
| ALASKA ONIONGRASS | 1 (5) | 1 (7) | 1 (5) | | | |
| SUKSDORF'S BROME | 2 (5) | 2 (21) | 1 (5) | | 1 (2) | 1 (2) |
| BLUE WILDRYE | | | | | | 1 (2) |
| SEDGE | 3 (16) | | | | | 5 (16) |
| BEARDED FESCUE | | 1 (7) | | | 2 (4) | 2 (7) |
| CRINKLEAWN FESCUE | | | 1 (5) | | | |
| BROME | 1 (5) | | | | 1 (6) | 1 (4) |
| CALIFORNIA BROME | | 2 (21) | | | | 1 (2) |
| HARFORD'S ONIONGRASS | | | | | | |
| CALIFORNIA FESCUE | | | 1 (5) | | | 1 (2) |

Table 9. Confirmed locations of white fir-Douglas-fir sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | | | | X | X |
| ORLEANS RD | X | X | | X | X | |
| LOWER TRINITY RD | X | | X | | X | |
| MAD RIVER RD | | | X | | X | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | | X | X | X |
| HAPPY CAMP RD | X | X | | X | | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | X | | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | X | | | | X | |
| YOLLA BOLLA RD | X | | | | | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | | | | | |
| COVELO RD | | | | | | |
| STONYFORD RD | | | | | | |
| UPPER LAKE RD | | | | | | |

Table 10. Comparison of environment and soil variables by plant association in the white fir-Douglas-fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| NUMBER OF PLOTS | 44 | 7 | 16 | 21 | 10 | 9 |
| **ENVIRONMENT:** ELEVATION (ft) | 4355 | 5036 | 4412 | 4574 | 4388 | 4492 |
| ASPECT | N. WEST, S. EAST, EAST | N. WEST | WEST, EAST | NORTH, WEST, S. EAST | N. EAST, SOUTH | N. EAST, WEST |
| SLOPE (%) | 48 | 39 | 42 | 58 | 21 | 46 |
| RADIATION INDEX | .460 | .340 | .440 | .440 | .470 | .401 |
| SURFACE ROCK(%) | 15 | 2 | 3 | 2 | 7 | 3 |
| **SOILS:** SOIL DEPTH (in) | 27 | 35 | 38 | 36 | 33 | 39 |
| AWC (in) | 2.0 | 2.7 | 4.0 | 3.0 | 3.4 | 3.4 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 6 | 17 | 14 | 9 | 9 | 14 |
| CO. FRAG. (%) | 44 | 48 | 36 | 35 | 28 | 37 |
| COLOR | dark brown, dark yellowish brown, very dark brown, dark grayish brown | dark brown, very dark brown | very dark grayish brown, dark brown | dark brown, very dark brown | dark yellowish brown, dark brown | very dark grayish brown, dark brown, black |
| TEXTURE | vgl, gl, xgl, vgsl | vgcl, gl | gl, gscl, vgcl | gsl, vgl, vgsl, xgcl | gl, vgl | vgl, xgl |
| PARENT MATERIAL | granite, ultramafic, mafic, schist | mafic | sandstone, schist | granite, mafic, schist | schist, phyllite | granite, mafic |
| SOIL FAMILY | Clallam, Althouse, Olete, Woodseye | Skalan, Tallac | Doty, Nanny, Bins | Althouse, Bins, Clallam, Nanny, Tallac | Kafing, Althouse | Tallac |

Table 11. Comparison of stand structure variables by plant association in the white fir-Douglas-fir sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| NUMBER OF PLOTS | 27 | 7 | 10 | 19 | 6 | 8 |
| STAND AGE | 306 | 239 | 214 | 320 | 176 | 259 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 8448 | 11966 | 10567 | 14220 | 11006 | 15504 |
| BASAL AREA ($ft^2$) | 279 | 310 | 343 | 345 | 322 | 366 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 43 | 0 | 88 | 0 | 268 | 20 |
| BASAL AREA ($ft^2$) | 5 | 0 | 4 | 0 | 11 | 2 |
| SITE CLASS | 1A-4 | 1-2 | 1, 2 | 1A-2 | 1, 2 | 1A-2 |
| SITE INDEX | 100-200 | 150-175 | 150-175 | 150-200 | 150-175 | 150-200 |
| STAND DENSITY INDEX | 405 | 463 | 506 | 453 | 440 | 482 |

Table 12. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 89 | 98 | 92 | 95 | 96 | 98 |
| GRASS COVER | 2 | 3 | 7 | 2 | 0 | 1 |
| FORB COVER | 9 | 80 | 10 | 17 | 62 | 42 |
| SHRUB COVER | 35 | 15 | 2 | 40 | 9 | 29 |
| TREE COVER | 71 | 73 | 87 | 76 | 80 | 81 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 17 (97) | 53 (100) | 37 (100) | 28 (100) | 36 (100) | 46 (100) |
| DOUGLAS-FIR | 40 (100) | 25 (71) | 55 (87) | 37 (90) | 40 (90) | 24 (100) |
| SUGAR PINE | 10 (81) | 2 (14) | 1 (6) | 18 (65) | 10 (80) | 4 (33) |
| INCENSE CEDAR | 10 (72) | 1 (42) | 8 (43) | 9 (65) | | 7 (33) |
| CHINQUAPIN | 4 (11) | | | 2 (35) | 7 (40) | |
| PACIFIC DOGWOOD | | | | 7 (35) | | 6 (66) |
| RED FIR | 6 (11) | 8 (28) | | 5 (5) | 5 (10) | 15 (11) |
| BLACK OAK | 2 (10) | | 2 (31) | 8 (10) | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| PACIFIC MADRONE | 2 (15) | | 7 (18) | | 15 (10) | |
| BIGLEAF MAPLE | | | 11 (18) | 3 (10) | | |
| TANOAK | | | | | | |
| JEFFREY PINE | 4 (22) | | 3 (6) | 5 (5) | 2 (10) | |
| PORT-ORFORD CEDAR | 5 (9) | | | | | |
| BREWER'S SPRUCE | 5 (9) | | | | | 1 (11) |
| PACIFIC YEW | 1 (2) | | | | | 1 (11) |
| CANYON LIVE OAK | | | 5 (12) | | | |
| PONDEROSA PINE | 10 (2) | | | 5 (5) | 5 (20) | |
| WESTERN WHITE PINE | 6 (13) | | | | | |
| OREGON WHITE OAK | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 3 (100) | 2 (100) | 1 (81) | 4 (100) | 3 (100) | 3 (77) |
| DOUGLAS-FIR | 1 (63) | 1 (14) | 1 (50) | 2 (60) | 2 (80) | 1 (44) |
| INCENSE CEDAR | 1 (56) | 1 (42) | 1 (25) | 2 (50) | | 2 (33) |
| CHINQUAPIN | 2 (25) | 1 (14) | 1 (6) | 4 (60) | 3 (50) | 1 (22) |
| PACIFIC DOGWOOD | 2 (4) | 2 (14) | | 2 (70) | | 10 (77) |
| CANYON LIVE OAK | 1 (4) | | 1 (68) | 1 (20) | 1 (20) | 1 (11) |
| SUGAR PINE | 1 (52) | | | 1 (10) | 1 (60) | |
| TANOAK | 2 (6) | 1 (14) | 1 (12) | 5 (10) | | |
| RED FIR | 1 (9) | | | 1 (5) | 1 (10) | |
| PACIFIC YEW | 1 (11) | | | 1 (5) | | 1 (11) |
| BLACK OAK | 1 (4) | | 1 (12) | 1 (10) | | 1 (11) |
| CASCARA | 3 (4) | 1 (14) | | 2 (25) | | 1 (22) |
| PACIFIC MADRONE | 1 (9) | | | | | |
| BIGLEAF MAPLE | | | 1 (25) | | | |
| PORT-ORFORD CEDAR | 1 (2) | | | | | |
| BREWER'S SPRUCE | 1 (9) | | | | | |
| JEFFREY PINE | 1 (9) | | | | | |
| WESTERN WHITE PINE | 1 (4) | | | | | |
| OREGON WHITE OAK | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 1 (40) | 3 (85) | 1 (50) | 2 (70) | 1 (40) | 2 (100) |
| CREEPING SNOWBERRY | 1 (31) | 3 (71) | 1 (43) | 2 (60) | 1 (70) | 2 (66) |
| HAZELNUT | 2 (15) | 2 (42) | 2 (37) | 6 (85) | 2 (10) | 5 (88) |
| DWARF OREGON-GRAPE | 3 (47) | 3 (42) | 4 (18) | 3 (35) | 3 (20) | 14 (66) |
| SADLER OAK | 3 (22) | 15 (28) | | 4 (40) | 11 (50) | 3 (44) |
| TRAILING BLACKBERRY | 1 (31) | | 1 (12) | 2 (40) | 1 (10) | 3 (77) |
| HUCKLEBERRY OAK | 28 (100) | | | 4 (5) | | 1 (11) |
| THIMBLEBERRY | 1 (11) | 4 (42) | | 27 (100) | | 5 (55) |
| OREGON BOXWOOD | 3 (15) | 1 (14) | | 2 (55) | 1 (20) | 1 (33) |
| MOUNTAIN MAPLE | 2 (6) | 6 (42) | | 3 (20) | | 4 (100) |
| OCEANSPRAY | 3 (25) | 2 (42) | | 5 (30) | | 3 (11) |
| RED HUCKLEBERRY | 6 (4) | | | 5 (5) | 4 (20) | 20 (22) |
| PINEMAT MANZANITA | 4 (29) | | | | 8 (30) | |
| SERVICEBERRY | 2 (24) | 1 (14) | 1 (12) | 1 (10) | | 1 (11) |
| DESERT GOOSEBERRY | 1 (4) | 2 (14) | 1 (18) | | | 1 (11) |
| THIN-LEAVED HUCKLEBERRY | 1 (2) | | | 2 (20) | | 1 (22) |
| VINE MAPLE | | 1 (14) | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SNOWBERRY | | | | | | 1 (11) |
| BLACKCAP | 1 (2) | | 3 (6) | | | |
| SLENDER SALAL | | | | | 3 (10) | |
| BITTER CHERRY | 4 (2) | | | 3 (5) | | |
| POISON OAK | 1 (2) | | | | | |
| GREENLEAF MANZANITA | 1 (13) | | | | | |
| TALL OREGON-GRAPE | 1 (9) | | 1 (12) | | 1 (10) | |
| DEERBRUSH | | | | 2 (5) | | |
| STICKY CURRANT | 1 (6) | 1 (42) | | 2 (14) | | |
| LOBB'S GOOSEBERRY | 1 (6) | 2 (14) | | 1 (10) | | 2 (11) |
| RED-FLOWERING CURRANT | | | | 1 (5) | | |
| SNOWBRUSH | | | | 2 (14) | | 1 (11) |
| PACIFIC RHODODENDRON | 2 (2) | | | | | |
| NUTALL WILLOW | 2 (2) | | | 1 (5) | | |
| PYGMY HOLLYGRAPE | 1 (18) | | | | | |
| CREEPING OREGON-GRAPE | | | | | | |
| SITKA ALDER | | | | | | |
| SQUAWCARPET | 6 (9) | | | | | |
| BOXLEAF SILKTASSEL | 7 (9) | | | | | |
| CALIFORNIA MOUNTAIN ASH | | | | | | 1 (11) |

Table 12. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/QUVA | ABCO-PSME/ARLA2 | ABCO-PSME/GRASS | ABCO-PSME/RUPA2 | ABCO-PSME/XETE | ABCO-PSME/ACGLT |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| PRINCE'S PINE | 2 (86) | 4 (71) | | 3 (90) | 4 (80) | 3 (100) |
| WHITE-VEINED WINTERGREEN | 1 (40) | 1 (57) | 1 (50) | 1 (55) | 1 (50) | 1 (66) |
| VANILLALEAF | 2 (38) | 7 (100) | | 4 (75) | 2 (10) | 19 (88) |
| HOOKER'S FAIRYBELL | 1 (25) | 2 (71) | 1 (43) | 2 (60) | 1 (10) | 1 (88) |
| RATTLESNAKE PLANTAIN | 1 (34) | 1 (42) | 1 (12) | 1 (35) | 1 (40) | 1 (44) |
| HAWKWEED | 1 (40) | 1 (71) | 1 (43) | 1 (55) | 1 (10) | 1 (44) |
| TRAILPLANT | 2 (11) | 1 (57) | 3 (56) | 2 (65) | | 2 (55) |
| STARFLOWER | 1 (20) | 2 (85) | 1 (25) | 1 (70) | 2 (10) | 2 (66) |
| LITTLE PRINCE'S PINE | 1 (27) | 1 (28) | 1 (6) | 1 (25) | 1 (20) | 1 (33) |
| BRACKENFERN | 4 (27) | 6 (28) | 1 (18) | 2 (65) | 1 (40) | 1 (66) |
| SMALL BEDSTRAW | 1 (4) | 1 (85) | 1 (43) | 1 (50) | | 1 (66) |
| WESTERN MODESTY | 4 (40) | | 50 (6) | 12 (25) | 11 (40) | 6 (22) |
| IRIS | 1 (31) | | 1 (31) | 1 (20) | 1 (20) | |
| TWINFLOWER | 10 (13) | | | 9 (14) | 5 (30) | 30 (33) |
| STREAM VIOLET | 1 (2) | 1 (57) | 1 (31) | 1 (25) | 1 (20) | 1 (55) |
| CALIFORNIA HAREBELL | 1 (22) | 1 (42) | 1 (25) | 1 (35) | 2 (10) | 1 (11) |
| ONE-SIDED WINTERGREEN | 1 (6) | 1 (28) | | 1 (25) | 1 (20) | 1 (88) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SWORDFERN | 1 (31) | 1 (28) | 1 (37) | 2 (14) | | 1 (22) |
| WHITE INSIDE-OUT FLOWER | 2 (4) | 11 (28) | 1 (6) | 1 (25) | 1 (10) | 2 (88) |
| FALSE SOLOMON'S SEAL | 1 (9) | 1 (28) | 1 (43) | 1 (20) | | 1 (33) |
| MOUNTAIN DOGBANE | 1 (4) | | | 1 (30) | 1 (10) | 1 (11) |
| QUEEN'S CUP | 1 (4) | 6 (42) | 1 (6) | 2 (20) | | 1 (55) |
| THREE-LEAVED ANEMONE | 1 (11) | 2 (57) | | 1 (20) | | 1 (66) |
| STICKY STARWORT | 1 (6) | | 1 (18) | 1 (10) | | |
| RAYLESS ARNICA | 1 (38) | | 2 (12) | 1 (14) | | |
| SHELTON'S VIOLET | | | 4 (56) | 1 (5) | | |
| WHITE TRILLIUM | 1 (2) | 1 (14) | 1 (18) | 1 (5) | | 1 (33) |
| BEARGRASS | 2 (31) | | | | 51 (100) | |
| WILD STRAWBERRY | | | | 1 (14) | | 1 (22) |
| SWEET CICELY | | 1 (57) | 4 (50) | 1 (5) | | 1 (22) |
| TONGUE-LEAVED PENSTEMON | | | | 1 (25) | | 1 (11) |
| WASHINGTON LILY | 1 (6) | 1 (14) | | 1 (14) | 1 (20) | 1 (11) |
| CORALROOT | | 1 (14) | 1 (6) | 1 (5) | 1 (10) | |
| PHANTOM ORCHID | | 1 (14) | 1 (12) | 1 (5) | | 1 (22) |
| STRIPED CORALROOT | 1 (2) | 1 (28) | 1 (6) | | | 1 (11) |
| REDWOOD VIOLET | 1 (4) | | | 1 (5) | 1 (10) | 2 (44) |
| STARRY SOLOMON'S SEAL | 1 (4) | 2 (28) | | | | 7 (44) |
| WOODLAND PHLOX | 1 (6) | | | 1 (14) | | |
| SCOULER'S HAREBELL | 1 (2) | 4 (14) | 1 (6) | 2 (5) | | 1 (22) |
| SPOTTED CORALROOT | 1 (4) | | 1 (18) | 1 (5) | 1 (10) | |
| DOGBANE | | | | 1 (10) | | |
| VETCH | 1 (4) | | | 2 (14) | | 1 (11) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PEAVINE | | | 2 (37) | 1 (5) | | |
| KELLOGIA | 1 (2) | | | 1 (5) | | |
| REDWOOD IVY | | | 1 (6) | | 1 (10) | |
| TOOTHED WINTERGREEN | 1 (15) | | | | 1 (10) | |
| BEDSTRAW | | | 2 (31) | | | |
| SHARP-TOOTHED ANGELICA | 2 (6) | | | | | |
| PACIFIC HOUND'S TONGUE | | | 1 (12) | | | |
| LUPINE | | | | | 1 (10) | 1 (11) |
| FAIRY-SLIPPER | | | 1 (18) | | | 1 (11) |
| WESTERN VIOLET | | | 1 (6) | | | |
| PINEDROPS | 1 (6) | | | 1 (5) | 1 (10) | |
| CALIFORNIA FALSE HELLEBORE | 1 (4) | 1 (14) | | 1 (5) | | |
| TWAYBLADE | | | | | 1 (10) | |
| HEART-LEAVED ARNICA | | 30 (14) | 2 (6) | | | |
| BROAD-LEAVED ARNICA | | 63 (85) | | 20 (5) | | |
| SMALL-FLOWERED NEMOPHILA | | | 2 (37) | | | |
| SNOWPLANT | | | | | 1 (20) | |
| WESTERN WOOD VIOLET | | 1 (28) | | 1 (5) | | |
| VARIED-LEAF COLLOMIA | | | | | | |
| HILL STAR | | | 8 (25) | | | |
| DEERVETCH | 2 (2) | | | | | 3 (11) |
| VARIED-LEAF MITREWORT | | 1 (28) | | | | |
| LEAFLESS WINTERGREEN | 1 (4) | | | | | |
| SUGAR-SCOOP | | | | | | |
| AMERICAN VETCH | 2 (2) | | 1 (6) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VIOLET | | | | | | |
| BANEBERRY | | 1 (14) | | | | 1 (11) |
| SPREADING DOGBANE | 1 (4) | | | | | |
| MARBLED WILD GINGER | | | | | | |
| CALIFORNIA TOOTHWORT | | | 1 (6) | | | |
| RED COLUMBINE | 1 (2) | 1 (28) | | | | 1 (11) |
| ARNICA | | | | | | |
| WILD GINGER | | | | 1 (5) | | |
| CALIFORNIA FAWN-LILY | | 1 (14) | 1 (12) | | | |
| SIBERIAN MONTIA | | | | | | |
| IMBRICATE SWORDFERN | 1 (6) | | | | | |
| WESTERN FESCUE | 2 (34) | 2 (14) | 1 (6) | 1 (20) | | 1 (11) |
| LARGE MOUNTAIN BROME | 1 (2) | 2 (14) | 2 (25) | 1 (25) | | 1 (22) |
| FIRE REEDGRASS | 1 (4) | 1 (14) | | | | 1 (11) |
| ALASKA ONIONGRASS | | | 6 (68) | 1 (10) | | 1 (11) |
| SUKSDORF'S BROME | | 4 (57) | | | | |
| BLUE WILDRYE | 1 (2) | | 3 (6) | 1 (5) | | |
| SEDGE | 3 (11) | | | 4 (25) | | |
| BEARDED FESCUE | 1 (6) | 2 (14) | 6 (31) | 1 (20) | | |
| CRINKLEAWN FESCUE | | | 2 (12) | | | |
| BROME | 2 (2) | | | 1 (10) | | 1 (11) |
| CALIFORNIA BROME | 1 (4) | | | 1 (10) | | |
| HARFORD'S ONIONGRASS | | | 2 (6) | | | |
| CALIFORNIA FESCUE | 12 (4) | | 1 (25) | | | |

Table 13. Confirmed locations of white fir-Douglas-fir sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | X | X | X |
| ORLEANS RD | | | X | X | X | X |
| LOWER TRINITY RD | | | X | X | X | X |
| MAD RIVER RD | | X | | X | X | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | X | X | X |
| HAPPY CAMP RD | X | X | X | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | X | | X | | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | X | X | X | X | |
| YOLLA BOLLA RD | | | X | X | | |
| BIG BAR RD | | | | | X | |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | | | | | |
| COVELO RD | | | | X | | |
| STONYFORD RD | | X | | X | | |
| UPPER LAKE RD | | | | | | |

T . Comparison of environment and soil variables by plant associati :he white fir-Douglas-fir sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| NUMBER OF PLOTS | 15 | 13 | 24 | 94 | 43 | 28 |
| **ENVIRONMENT:** ELEVATION (ft) | 3986 | 4356 | 3794 | 4585 | 4325 | 4386 |
| ASPECT | N. WEST, S. EAST | N. WEST | N. EAST, WEST, S. EAST | ALL | N. WEST, EAST, S. WEST | S. WEST, EAST, N. WEST |
| SLOPE (%) | 40 | 52 | 31 | 41 | 44 | 44 |
| RADIATION INDEX | .420 | .402 | .430 | .440 | .440 | .440 |
| SURFACE ROCK(%) | 3 | 3 | 3 | 3 | 8 | 3 |
| **SOILS:** SOIL DEPTH (in) | 32 | 36 | 38 | 34 | 35 | 35 |
| AWC (in) | 3.1 | 3.5 | 4.3 | 3.3 | 3.6 | 3.5 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 9 | 10 | 11 | 10 | 9 | 10 |
| CO. FRAG. (%) | 45 | 40 | 32 | 35 | 31 | 38 |
| COLOR | dark brown, very dark brown | very dark grayish brown, dark brown, dark yellowish brown | dark brown, dark yellowish brown, dark reddish brown | very dark brown, very dark grayish brown, dark brown, black,dark yellowish brown | dark brown, very dark grayish brown, very dark brown, dark yellowish brown | very dark grayish brown, dark brown, dark yellowish brown |
| TEXTURE | gl, vgl, xgl, gscl | gl, vgl, vgcl | gsl, vgl, sl, gl, l, vgcl | gl, vgl, gscl, vgsl, vksl | gl, vgl, gsil, l | gl, vgl, gsl, vgsl |
| PARENT MATERIAL | granite, mafic, phyllite, schist | schist, mafic | granite, schist, mafic, phyllite | sandstone, schist, phyllite, mafic, granite | phyllite, schist, granite, greenstone, sandstone | granite, schist |
| SOIL FAMILY | Nanny | Althouse, Clallam | Althouse, Clallam, Kafing, Wintone | Althouse, Bins, Clallam,Kafing Deadwood, Coty | Bentpeak, Althouse, Bins, Kafing, Nanny | Clallam, Nanny, Kafing |

Table 15. Comparison of stand structure variables by plant association in the white fir-Douglas-fir sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| NUMBER OF PLOTS | 14 | 9 | 11 | 55 | 23 | 20 |
| STAND AGE | 265 | 245 | 282 | 222 | 226 | 232 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 13034 | 11958 | 10800 | 13377 | 11731 | 13697 |
| BASAL AREA ($ft^2$) | 328 | 318 | 291 | 362 | 312 | 342 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 23 | 120 | 63 | 38 | 79 | 0 |
| BASAL AREA ($ft^2$) | 4 | 7 | 6 | 2 | 4 | 0 |
| SITE CLASS | 1A-1 | 1A-2 | 1A-1 | 1A-2 | 1A-2 | 1A-1 |
| SITE INDEX | 175-200 | 150-200 | 175-200 | 150-200 | 150-200 | 175-200 |
| STAND DENSITY INDEX | 444 | 463 | 460 | 500 | 446 | 490 |

Table 16. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 98 | 1 | 95 | 87 | 94 | 94 |
| GRASS COVER | <1 | 2 | 1 | 2 | 2 | 1 |
| FORB COVER | 43 | 26 | 50 | 9 | 27 | 40 |
| SHRUB COVER | 33 | 10 | 20 | 6 | 20 | 18 |
| TREE COVER | 78 | 84 | 77 | 80 | 85 | 84 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 29 (93) | 35 (100) | 31 (100) | 45 (98) | 28 (100) | 53 (100) |
| DOUGLAS-FIR | 43 (100) | 33 (100) | 37 (100) | 31 (100) | 46 (97) | 30 (88) |
| SUGAR PINE | 6 (33) | | 8 (20) | 8 (36) | 8 (43) | 3 (34) |
| INCENSE CEDAR | 7 (26) | 5 (33) | 3 (20) | 6 (29) | 9 (31) | 7 (46) |
| CHINQUAPIN | 3 (13) | 5 (16) | 6 (50) | 3 (5) | 7 (34) | 5 (15) |
| PACIFIC DOGWOOD | 12 (53) | 5 (41) | 4 (33) | 2 (7) | 3 (31) | 3 (34) |
| RED FIR | 5 (6) | 3 (8) | 1 (4) | 1 (2) | 8 (7) | 1 (3) |
| BLACK OAK | | | 2 (12) | 3 (9) | 11 (4) | 2 (3) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PACIFIC MADRONE | | 3 (16) | 4 (20) | 3 (4) | 6 (9) | 3 (3) |
| BIGLEAF MAPLE | 1 (6) | 12 (100) | 2 (12) | 1 (1) | 8 (19) | 2 (3) |
| TANOAK | 6 (13) | | 2 (25) | | 6 (7) | 2 (3) |
| JEFFREY PINE | | | | 6 (7) | | |
| PORT-ORFORD CEDAR | 3 (13) | 3 (8) | 3 (4) | 3 (2) | 8 (2) | |
| BREWER'S SPRUCE | | | | | | |
| PACIFIC YEW | 1 (6) | | 3 (20) | | 7 (4) | |
| CANYON LIVE OAK | 1 (6) | 8 (16) | 2 (8) | 1 (1) | 6 (7) | 1 (3) |
| PONDEROSA PINE | | | | 3 (3) | 5 (2) | |
| WESTERN WHITE PINE | | | | 5 (1) | | |
| OREGON WHITE OAK | | | | 1 (2) | | |

Table 16. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 4 (86) | 2 (83) | 5 (100) | 3 (94) | 2 (97) | 3 (100) |
| DOUGLAS-FIR | 1 (40) | 1 (50) | 2 (70) | 1 (51) | 1 (60) | 1 (42) |
| INCENSE CEDAR | 2 (40) | 2 (33) | 2 (29) | 1 (31) | 1 (31) | 2 (34) |
| CHINQUAPIN | 2 (53) | 2 (16) | 3 (58) | 1 (17) | 2 (36) | 2 (34) |
| PACIFIC DOGWOOD | 2 (53) | 3 (50) | 4 (75) | 2 (13) | 1 (36) | 4 (65) |
| CANYON LIVE OAK | 2 (13) | 2 (41) | 2 (33) | 1 (47) | 1 (41) | 1 (26) |
| SUGAR PINE | | | 1 (16) | 1 (21) | 1 (9) | 1 (3) |
| TANOAK | 4 (20) | | 3 (33) | 2 (9) | 2 (29) | 2 (26) |
| RED FIR | | | 1 (4) | | 2 (2) | |
| PACIFIC YEW | | | 2 (37) | 1 (1) | 1 (14) | 13 (7) |
| BLACK OAK | | 1 (8) | 1 (4) | 1 (15) | 1 (9) | |
| CASCARA | 2 (20) | 2 (8) | | 1 (1) | 4 (9) | 1 (15) |
| PACIFIC MADRONE | | 2 (8) | 2 (12) | 1 (4) | | 5 (3) |
| BIGLEAF MAPLE | | 1 (66) | | 1 (4) | 1 (17) | 1 (11) |
| PORT-ORFORD CEDAR | | | 1 (4) | | 1 (2) | |
| BREWER'S SPRUCE | | | | | | |
| JEFFREY PINE | | | | 1 (3) | | |
| WESTERN WHITE PINE | | | | | | |
| OREGON WHITE OAK | 1 (6) | | | 1 (1) | 14 (2) | |

Table 16. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO-PSME/COCOC | ABCO-PSME/ACTR |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 1 (73) | 1 (75) | 3 (99) | 1 (69) | 2 (86) | 3 (80) |
| CREEPING SNOWBERRY | 2 (33) | 1 (58) | 4 (70) | 2 (70) | 2 (70) | 5 (65) |
| HAZELNUT | 8 (66) | 5 (75) | 6 (83) | 5 (52) | 10 (100) | 5 (76) |
| DWARF OREGON-GRAPE | 5 (53) | 4 (66) | 8 (75) | 4 (27) | 4 (41) | 8 (57) |
| SADLER OAK | 6 (40) | 2 (8) | | 2 (6) | 3 (26) | 1 (19) |
| TRAILING BLACKBERRY | 2 (46) | 1 (41) | 2 (45) | 1 (25) | 2 (53) | 2 (46) |
| HUCKLEBERRY OAK | 1 (6) | 1 (16) | 3 (16) | 2 (15) | 3 (17) | 3 (15) |
| THIMBLEBERRY | 2 (20) | 3 (16) | 1 (20) | 2 (13) | 3 (31) | 2 (46) |
| OREGON BOXWOOD | 3 (33) | 1 (25) | 3 (29) | 2 (16) | 1 (26) | 1 (23) |
| MOUNTAIN MAPLE | | 4 (8) | 2 (4) | 2 (5) | 4 (14) | 3 (7) |
| OCEANSPRAY | 1 (13) | | 2 (8) | 2 (13) | 5 (48) | 6 (19) |
| RED HUCKLEBERRY | | | 5 (12) | | 3 (4) | 16 (3) |
| PINEMAT MANZANITA | | | 5 (4) | 3 (1) | 5 (2) | |
| SERVICEBERRY | 1 (12) | 1 (8) | 1 (8) | 1 (15) | 1 (21) | 1 (18) |
| DESERT GOOSEBERRY | 1 (6) | 1 (8) | | 2 (7) | 1 (7) | 1 (19) |

| | | | | | | |
|---|---|---|---|---|---|---|
| THIN-LEAVED HUCKLEBERRY | 3 (26) | | 10 (4) | | 8 (2) | 1 (3) |
| VINE MAPLE | 25 (100) | 10 (8) | 2 (8) | | 2 (7) | 1 (7) |
| SNOWBERRY | 1 (13) | 1 (8) | 1 (16) | 1 (2) | | 1 (3) |
| BLACKCAP | | 7 (8) | 1 (16) | 1 (6) | 1 (7) | 2 (3) |
| SLENDER SALAL | 10 (6) | | | 1 (1) | | 1 (3) |
| BITTER CHERRY | | | 10 (4) | 2 (1) | 5 (7) | |
| POISON OAK | 1 (6) | 1 (8) | 1 (4) | 2 (2) | | 1 (3) |
| GREENLEAF MANZANITA | | | | 1 (1) | | |
| TALL OREGON-GRAPE | | | | 2 (7) | 2 (2) | |
| DEERBRUSH | 1 (6) | 3 (8) | 1 (4) | 2 (6) | | |
| STICKY CURRANT | | | | | 1 (4) | |
| LOBB'S GOOSEBERRY | | | | 5 (1) | 1 (4) | 1 (7) |
| RED-FLOWERING CURRANT | | | | 2 (2) | 1 (4) | |
| SNOWBRUSH | 1 (6) | | | 4 (1) | 1 (2) | |
| PACIFIC RHODODENDRON | | | | | 5 (2) | 1 (3) |
| NUTALL WILLOW | | | | 1 (1) | 3 (2) | |
| PYGMY HOLLYGRAPE | | 5 (8) | | 1 (1) | | |
| CREEPING OREGON-GRAPE | | | | | | |
| SITKA ALDER | | 4 (8) | | | | |
| SQUAWCARPET | | | | | | |
| BOXLEAF SILKTASSEL | | | | | 1 (2) | |
| CALIFORNIA MOUNTAIN ASH | | 1 (8) | | | | 1 (3) |

Table 16. Comparison of vegetation variables by plant association in the white fir-Douglas-fir sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME/ACCI | ABCO-PSME-ACMA | ABCO-PSME/ ROGY/LIBOL | ABCO-PSME/ ROGY-SYMO | ABCO- PSME/COCOC | ABCO- PSME/ACTR |
| HERBS & GRASSES (% COVER) (CONSTANCY) | | | | | | |
| PRINCE'S PINE | 4 (80) | 2 (33) | 8 (87) | 3 (39) | 7 (82) | 7 (88) |
| WHITE-VEINED WINTERGREEN | 1 (60) | 1 (41) | 1 (58) | 1 (69) | 1 (51) | 1 (80) |
| VANILLALEAF | 14 (80) | 16 (16) | 9 (79) | 2 (15) | 12 (63) | 13 (100) |
| HOOKER'S FAIRYBELL | 1 (73) | 2 (75) | 2 (66) | 1 (39) | 2 (75) | 2 (69) |
| RATTLESNAKE PLANTAIN | 1 (73) | 1 (33) | 1 (70) | 1 (31) | 1 (41) | 1 (50) |
| HAWKWEED | 1 (33) | 1 (25) | 1 (45) | 1 (55) | 1 (48) | 1 (46) |
| TRAILPLANT | 1 (60) | 1 (41) | 1 (62) | 2 (53) | 3 (58) | 1 (61) |
| STARFLOWER | 1 (60) | 1 (25) | 1 (50) | 1 (25) | 2 (53) | 1 (50) |
| LITTLE PRINCE'S PINE | 4 (20) | 1 (25) | 1 (20) | 1 (44) | 1 (29) | 1 (57) |
| BRACKENFERN | 2 (53) | 1 (16) | 2 (37) | 4 (25) | 1 (43) | 2 (30) |
| SMALL BEDSTRAW | 1 (33) | 1 (50) | 1 (37) | 1 (25) | 1 (43) | 1 (50) |
| WESTERN MODESTY | 12 (53) | 33 (41) | 11 (83) | 2 (11) | 6 (34) | 13 (50) |
| IRIS | 1 (13) | 1 (25) | 1 (33) | 1 (25) | 1 (12) | 1 (19) |
| TWINFLOWER | 24 (66) | 5 (8) | 27 (100) | 3 (2) | 9 (24) | 2 (15) |
| STREAM VIOLET | 1 (33) | 1 (33) | 1 (33) | 1 (15) | 1 (14) | 1 (46) |
| CALIFORNIA HAREBELL | 1 (13) | 4 (16) | 1 (12) | 1 (24) | 1 (34) | 3 (30) |
| ONE-SIDED WINTERGREEN | 1 (20) | 1 (8) | 1 (33) | 1 (9) | 1 (26) | 2 (26) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SWORDFERN | 1 (13) | 1 (41) | 1 (25) | 3 (19) | 2 (43) | 1 (26) |
| WHITE INSIDE-OUT FLOWER | 2 (33) | 23 (16) | 2 (33) | 4 (9) | 3 (36) | 3 (26) |
| FALSE SOLOMON'S SEAL | 1 (13) | 1 (33) | 1 (33) | 1 (19) | 1 (29) | 1 (19) |
| MOUNTAIN DOGBANE | | 1 (8) | 1 (20) | 1 (16) | 2 (24) | 1 (23) |
| QUEEN'S CUP | 7 (40) | 1 (8) | 1 (37) | 1 (6) | 3 (12) | 5 (34) |
| THREE-LEAVED ANEMONE | 1 (40) | 2 (8) | 1 (4) | 1 (4) | 4 (19) | 2 (30) |
| STICKY STARWORT | | 1 (8) | 1 (4) | 1 (21) | 1 (9) | 1 (26) |
| RAYLESS ARNICA | 1 (20) | 1 (8) | 1 (33) | 1 (17) | 1 (12) | 1 (19) |
| SHELTON'S VIOLET | | 2 (16) | | 1 (20) | 1 (12) | 1 (11) |
| WHITE TRILLIUM | 1 (40) | 1 (8) | 1 (8) | 1 (6) | 1 (9) | 1 (19) |
| BEARGRASS | | | 1 (16) | | 1 (4) | |
| WILD STRAWBERRY | 3 (40) | 3 (8) | 1 (29) | 2 (8) | 1 (17) | 1 (30) |
| SWEET CICELY | 1 (13) | 2 (16) | 1 (16) | 1 (8) | 2 (21) | 2 (15) |
| TONGUE-LEAVED PENSTEMON | | | | 2 (7) | | 1 (11) |
| WASHINGTON LILY | 1 (6) | | 1 (4) | 1 (9) | 1 (4) | 1 (7) |
| CORALROOT | | 1 (8) | 1 (4) | 1 (11) | 1 (14) | 1 (26) |
| PHANTOM ORCHID | 1 (13) | 1 (58) | 1 (12) | 1 (15) | 1 (24) | 1 (7) |
| STRIPED CORALROOT | 1 (6) | 1 (8) | 1 (8) | 1 (12) | 1 (9) | |
| REDWOOD VIOLET | 3 (33) | 1 (8) | 1 (29) | 1 (3) | 2 (24) | 6 (26) |
| STARRY SOLOMON'S SEAL | 7 (33) | 1 (8) | | 1 (4) | 1 (7) | 1 (3) |
| WOODLAND PHLOX | | | 2 (8) | 1 (6) | 1 (7) | 1 (11) |
| SCOULER'S HAREBELL | 1 (6) | | 1 (4) | 1 (13) | 1 (7) | 5 (11) |
| SPOTTED CORALROOT | 1 (6) | | 1 (12) | 1 (11) | 1 (17) | 1 (3) |
| DOGBANE | | | 1 (4) | 1 (3) | | 1 (11) |
| VETCH | 1 (6) | 1 (8) | 2 (8) | 1 (6) | 1 (7) | 1 (3) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PEAVINE | | 1 (16) | 4 (8) | 11 (10) | 1 (7) | 2 (6) |
| KELLOGIA | 1 (6) | | | 1 (4) | 1 (9) | |
| REDWOOD IVY | | | 4 (12) | 2 (4) | 5 (4) | 14 (19) |
| TOOTHED WINTERGREEN | | | 1 (4) | 1 (1) | | |
| BEDSTRAW | | 1 (8) | 1 (4) | 1 (13) | 1 (2) | |
| SHARP-TOOTHED ANGELICA | | | | 1 (1) | | 1 (7) |
| PACIFIC HOUND'S TONGUE | | 1 (25) | | 1 (4) | 1 (2) | |
| LUPINE | | | 1 (12) | 3 (6) | 1 (7) | |
| FAIRY-SLIPPER | | | | 1 (5) | 1 (2) | |
| WESTERN VIOLET | 1 (6) | | | 1 (3) | 1 (4) | |
| PINEDROPS | | | 1 (4) | 1 (2) | 1 (17) | |
| CALIFORNIA FALSE HELLEBORE | | | 1 (8) | 1 (1) | | 1 (7) |
| TWAYBLADE | 1 (26) | | | 1 (2) | | 1 (3) |
| HEART-LEAVED ARNICA | | | 1 (4) | 1 (3) | | |
| BROAD-LEAVED ARNICA | | | | | | |
| SMALL-FLOWERED NEMOPHILA | | | | 1 (2) | | |
| SNOWPLANT | | | 1 (4) | | | |
| WESTERN WOOD VIOLET | | | | 1 (3) | | 1 (3) |
| VARIED-LEAF COLLOMIA | | 2 (16) | | 1 (2) | 1 (7) | |
| HILL STAR | | | | | | |
| DEERVETCH | 2 (6) | 2 (8) | | | 4 (2) | |
| VARIED-LEAF MITREWORT | | | 1 (4) | 6 (2) | | 1 (11) |
| LEAFLESS WINTERGREEN | | | | 1 (5) | | |
| SUGAR-SCOOP | 1 (20) | | 2 (4) | | 1 (7) | |
| AMERICAN VETCH | | | 2 (8) | 5 (3) | 1 (2) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VIOLET | | | 1 (4) | | | |
| BANEBERRY | | | | | | 1 (11) |
| SPREADING DOGBANE | 1 (13) | | | | | |
| MARBLED WILD GINGER | | 1 (8) | 1 (4) | | | 1 (3) |
| CALIFORNIA TOOTHWORT | | | | 1 (3) | | 1 (3) |
| RED COLUMBINE | | | | | | |
| ARNICA | | | | 2 (2) | | |
| WILD GINGER | | 10 (8) | | 1 (4) | | 2 (7) |
| CALIFORNIA FAWN-LILY | | | | | | |
| SIBERIAN MONTIA | | | | 9 (3) | | |
| IMBRICATE SWORDFERN | | | | | | |
| WESTERN FESCUE | 1 (6) | 1 (16) | 2 (12) | 2 (27) | 1 (26) | 1 (15) |
| LARGE MOUNTAIN BROME | 1 (20) | 2 (33) | 2 (12) | 1 (16) | 2 (17) | 1 (15) |
| FIRE REEDGRASS | | | 1 (4) | 3 (8) | 1 (7) | 1 (19) |
| ALASKA ONIONGRASS | 1 (6) | 2 (25) | 3 (8) | 1 (13) | 1 (12) | 1 (7) |
| SUKSDORF'S BROME | 1 (26) | | | 5 (2) | 1 (2) | 2 (30) |
| BLUE WILDRYE | | 2 (16) | 1 (4) | 1 (10) | 1 (2) | |
| SEDGE | | | 1 (4) | 1 (1) | 1 (4) | |
| BEARDED FESCUE | | 1 (16) | | 2 (8) | 3 (12) | |
| CRINKLEAWN FESCUE | 1 (6) | 2 (16) | 2 (12) | 2 (4) | 2 (7) | 4 (7) |
| BROME | 1 (13) | | | 1 (3) | 1 (4) | 1 (7) |
| CALIFORNIA BROME | | | | | 1 (2) | 1 (7) |
| HARFORD'S ONIONGRASS | | | 1 (4) | 1 (7) | 1 (2) | 1 (3) |
| CALIFORNIA FESCUE | | 1 (8) | | 2 (4) | 1 (2) | |

Table 17. Confirmed locations of white fir-Douglas-fir and white fir-incense cedar sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | | | X | | |
| ORLEANS RD | X | X | X | | X | X |
| LOWER TRINITY RD | X | X | X | X | X | X |
| MAD RIVER RD | X | X | X | X | X | X |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | | | | X | |
| HAPPY CAMP RD | | | | | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | X | | | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | | X | | X | |
| YOLLA BOLLA RD | | X | | | | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | | | | | X |
| COVELO RD | | | | | | |
| STONYFORD RD | | | | | | X |
| UPPER LAKE RD | | | | | | |

Table 18. Comparison of environment and soil variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| NUMBER OF PLOTS | 7 | 13 | 12 | 12 | 13 | 22 |
| **ENVIRONMENT:** ELEVATION (ft) | 4057 | 4228 | 4068 | 4137 | 4245 | 4885 |
| ASPECT | S. WEST | S. EAST, S. WEST | EAST, S. EAST | EAST | N. EAST, S. WEST | S. WEST |
| SLOPE (%) | 52 | 51 | 48 | 30 | 42 | 38 |
| RADIATION INDEX | .500 | .470 | .450 | .510 | .430 | .460 |
| SURFACE ROCK(%) | 6 | 20 | 14 | 6 | 7 | 7 |
| **SOILS:** SOIL DEPTH (in) | 35 | 31 | 33 | 36 | 34 | 34 |
| AWC (in) | 2.5 | 2.5 | 3.2 | 3.6 | 3.8 | 3.2 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 10 | 7 | 11 | 9 | 10 | 13 |
| CO. FRAG. (%) | 54 | 43 | 36 | 27 | 27 | 40 |
| COLOR | dark brown, dark reddish brown | very dark grayish brown, dark brown, black | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | very dark grayish brown, dark brown | dark brown, dark yellowish brown, very dark grayish brown | very dark brown, dark brown, very dark grayish brown, dark yellowish brown |
| TEXTURE | xgl, vgcl | gl, vgl, xgl | gl, gscl | gl, vgl | gl, vgl, l | gl, vgl |
| PARENT MATERIAL | sandstone | sandstone | sandstone | sandstone | schist, phyllite, granite | mafic, schist, greenstone |
| SOIL FAMILY | Bentpeak, Clallam | Hugo, Nanny, Clallam | Clallam | Abegg, Bentpeak, Kafing | Kafing, Abegg, Althouse | Althouse, Nanny, Neans |

Table 19. Comparison of stand structure variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| NUMBER OF PLOTS | 3 | 9 | 9 | 2 | 6 | 20 |
| STAND AGE | 224 | 258 | 277 | 168 | 213 | 263 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 7550 | 10170 | 9452 | 6990 | 12295 | 12969 |
| BASAL AREA ($ft^2$) | 243 | 318 | 288 | 240 | 322 | 356 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 270 | 287 | 499 | 694 | 46 | 63 |
| BASAL AREA ($ft^2$) | 18 | 13 | 27 | 33 | 2 | 4 |
| SITE CLASS | 1-3 | 1A-3 | 1-3 | 1-3 | 1 | 1-3 |
| SITE INDEX | 125-175 | 125-200 | 125-175 | 125-175 | 175 | 125-175 |
| STAND DENSITY INDEX | 469 | 470 | 447 | 435 | 445 | 482 |

Table 20. Comparison of vegetation variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ANCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 97 | 89 | 91 | 95 | 93 | 87 |
| GRASS COVER | 2 | 8 | <1 | <1 | 2 | 3 |
| FORB COVER | 31 | 8 | 4 | 2 | 32 | 13 |
| SHRUB COVER | 9 | 2 | 2 | 2 | 4 | 5 |
| TREE COVER | 89 | 83 | 87 | 93 | 82 | 76 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 23 (100) | 14 (90) | 18 (100) | 23 (100) | 29 (100) | 35 (100) |
| DOUGLAS-FIR | 55 (100) | 55 (100) | 56 (100) | 57 (100) | 46 (100) | 33 (78) |
| SUGAR PINE | 2 (50) | | 11 (41) | 6 (30) | 15 (30) | 14 (21) |
| INCENSE CEDAR | 6 (33) | 9 (36) | 3 (33) | 7 (40) | 12 (15) | 17 (100) |
| CHINQUAPIN | | | 14 (58) | 1 (10) | 4 (38) | 3 (10) |
| PACIFIC DOGWOOD | | | 3 (16) | | 5 (7) | 1 (15) |
| RED FIR | | | | | | 10 (10) |

| | | | | | | |
|---|---|---|---|---|---|---|
| BLACK OAK | 1 (33) | 6 (45) | 2 (33) | 10 (100) | 5 (7) | 1 (10) |
| PACIFIC MADRONE | 7 (83) | | 5 (16) | 16 (40) | 5 (7) | |
| BIGLEAF MAPLE | 7 (50) | 2 (18) | 9 (16) | | 2 (15) | 7 (21) |
| TANOAK | 2 (33) | | 4 (16) | | | |
| JEFFREY PINE | | | | | | |
| PORT-ORFORD CEDAR | | | | | | |
| BREWER'S SPRUCE | | | | | | |
| PACIFIC YEW | | | | | | |
| CANYON LIVE OAK | 13 (100) | 22 (90) | 11 (100) | | 5 (7) | |
| PONDEROSA PINE | | 3 (18) | 2 (8) | 3 (20) | | |
| WESTERN WHITE PINE | | | | | | |
| OREGON WHITE OAK | 5 (16) | 5 (9) | | | | |

Table 20. Comparison of vegetation variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| WHITE FIR | 2 (100) | 1 (81) | 1 (66) | 2 (100) | 3 (100) | 3 (100) |
| DOUGLAS-FIR | 3 (83) | 1 (45) | 1 (66) | 2 (80) | 1 (76) | 1 (36) |
| INCENSE CEDAR | 1 (16) | | 1 (8) | 2 (40) | 2 (23) | 2 (78) |
| CHINQUAPIN | | | 11 (16) | | 2 (53) | 2 (10) |
| PACIFIC DOGWOOD | | | 1 (33) | | 2 (23) | 1 (5) |
| CANYON LIVE OAK | 5 (100) | 6 (100) | 2 (91) | 2 (60) | 1 (53) | 1 (15) |
| SUGAR PINE | | 1 (9) | 1 (41) | 1 (30) | 1 (30) | 1 (10) |
| TANOAK | 2 (50) | | 3 (25) | 2 (30) | 1 (30) | 1 (5) |
| RED FIR | | | | | | 1 (5) |
| PACIFIC YEW | | | | | | |
| BLACK OAK | | 1 (9) | 1 (16) | 1 (60) | | 1 (5) |
| CASCARA | | | | 1 (10) | | |
| PACIFIC MADRONE | 1 (50) | | 1 (8) | 1 (10) | | |
| BIGLEAF MAPLE | 2 (33) | | 1 (8) | | 1 (7) | 1 (21) |
| PORT-ORFORD CEDAR | | | | | | |
| BREWER'S SPRUCE | | | | | | |
| JEFFREY PINE | | | | | | |
| WESTERN WHITE PINE | | | | | | |
| OREGON WHITE OAK | 1 (16) | | | | | |

Table 20. Comparison of vegetation variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 1 (100) | 1 (45) | 1 (58) | 1 (60) | 1 (92) | 1 (83) |
| CREEPING SNOWBERRY | 1 (83) | 1 (54) | 1 (25) | 1 (60) | 1 (69) | 1 (73) |
| HAZELNUT | 2 (83) | 2 (45) | 2 (33) | 2 (60) | 3 (61) | 2 (52) |
| DWARF OREGON-GRAPE | 2 (33) | 1 (36) | 1 (41) | 1 (30) | 2 (61) | 2 (42) |
| SADLER OAK | | | | | 1 (7) | 2 (10) |
| TRAILING BLACKBERRY | | 1 (9) | 1 (8) | 1 (20) | 1 (84) | 1 (21) |
| HUCKLEBERRY OAK | | | | | 5 (7) | 1 (15) |
| THIMBLEBERRY | | | 1 (8) | | 1 (15) | 1 (21) |
| OREGON BOXWOOD | 1 (16) | | | 1 (10) | 1 (7) | |
| MOUNTAIN MAPLE | | | | | | |
| OCEANSPRAY | 1 (16) | 2 (9) | | | 1 (15) | 2 (31) |
| RED HUCKLEBERRY | | | | | | |
| PINEMAT MANZANITA | | | | | | 3 (10) |
| SERVICEBERRY | 1 (16) | | 1 (8) | 1 (30) | 1 (7) | 2 (5) |
| DESERT GOOSEBERRY | | 1 (9) | | | 1 (7) | 1 (21) |

| | | | | | | |
|---|---|---|---|---|---|---|
| THIN-LEAVED HUCKLEBERRY | | | | | | |
| VINE MAPLE | | | | | | |
| SNOWBERRY | | | | | | |
| BLACKCAP | 4 (16) | 1 (18) | 1 (8) | | | 1 (5) |
| SLENDER SALAL | | | | | | |
| BITTER CHERRY | | | | | | |
| POISON OAK | 1 (16) | | 3 (16) | | | |
| GREENLEAF MANZANITA | | | | | | 1 (5) |
| TALL OREGON-GRAPE | 4 (100) | 1 (9) | | 1 (10) | | 1 (21) |
| DEERBRUSH | | 1 (9) | | | | |
| STICKY CURRANT | | | | | | 1 (5) |
| LOBB'S GOOSEBERRY | | | | | | 1 (15) |
| RED-FLOWERING CURRANT | | | | | | 1 (5) |
| SNOWBRUSH | | | | | | 1 (5) |
| PACIFIC RHODODENDRON | | | | | | |
| NUTALL WILLOW | | | | | | 2 (5) |
| PYGMY HOLLYGRAPE | | | | | | 1 (5) |
| CREEPING OREGON-GRAPE | | | | | 1 (7) | |
| SITKA ALDER | | | | | | |
| SQUAWCARPET | | | | | | |
| BOXLEAF SILKTASSEL | | | | | | |
| CALIFORNIA MOUNTAIN ASH | | | | | | |

Table 20. Comparison of vegetation variables by plant association in the white fir-Douglas-fir and white fir-incense cedar sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-PSME-QUCH2/BEAQ | ABCO-PSME-QUCH2/HIAL/GRASS | ABCO-PSME-QUCH2/PYPI | ABCO-PSME-QUKE | ABCO-PSME/WHMO | ABCO-LIDE3/SYMO |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| PRINCE'S PINE | 1 (16) | 1 (27) | 2 (58) | 1 (10) | 4 (61) | 4 (42) |
| WHITE-VEINED WINTERGREEN | 1 (50) | 1 (72) | 1 (100) | 1 (20) | 1 (61) | 1 (57) |
| VANILLALEAF | | | 5 (8) | | 1 (38) | 2 (31) |
| HOOKER'S FAIRYBELL | 1 (33) | 1 (18) | 1 (33) | 1 (20) | 1 (61) | 1 (57) |
| RATTLESNAKE PLANTAIN | 1 (50) | | 1 (50) | 1 (10) | 1 (46) | 1 (52) |
| HAWKWEED | 1 (66) | 2 (81) | 1 (50) | 1 (20) | 1 (76) | 1 (57) |
| TRAILPLANT | 1 (66) | 3 (54) | 1 (16) | 1 (50) | 1 (61) | 2 (68) |
| STARFLOWER | 3 (50) | | 1 (8) | 1 (20) | 3 (46) | 1 (63) |
| LITTLE PRINCE'S PINE | 1 (50) | 1 (27) | 1 (75) | 1 (20) | 1 (30) | 1 (26) |
| BRACKENFERN | 1 (16) | | 1 (25) | 1 (20) | 4 (61) | 1 (31) |
| SMALL BEDSTRAW | 1 (33) | 1 (27) | 1 (16) | 1 (10) | 1 (23) | 1 (42) |
| WESTERN MODESTY | 22 (66) | 4 (18) | 1 (8) | 1 (10) | 26 (100) | 13 (10) |
| IRIS | 1 (50) | 1 (54) | 1 (66) | 1 (60) | 1 (46) | 1 (21) |
| TWINFLOWER | | | | | 1 (7) | |
| STREAM VIOLET | 2 (16) | | 1 (8) | 1 (10) | 1 (38) | 1 (57) |
| CALIFORNIA HAREBELL | 1 (50) | 1 (27) | 1 (25) | | 2 (38) | 1 (31) |
| ONE-SIDED WINTERGREEN | | | | | 1 (15) | 1 (5) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SWORDFERN | 1 (33) | 1 (45) | 1 (16) | 1 (20) | 1 (30) | 1 (26) |
| WHITE INSIDE-OUT FLOWER | | | 20 (8) | | 1 (15) | 1 (5) |
| FALSE SOLOMON'S SEAL | 1 (50) | 1 (9) | 1 (8) | 1 (10) | 1 (23) | 1 (21) |
| MOUNTAIN DOGBANE | | 1 (9) | | 1 (20) | 1 (30) | 1 (15) |
| QUEEN'S CUP | | | | | 1 (7) | 1 (26) |
| THREE-LEAVED ANEMONE | | | | | | 1 (26) |
| STICKY STARWORT | | 1 (36) | 1 (16) | 1 (30) | | 1 (15) |
| RAYLESS ARNICA | 2 (16) | 1 (18) | 1 (16) | | | |
| SHELTON'S VIOLET | | 1 (36) | | 1 (50) | 1 (7) | 1 (21) |
| WHITE TRILLIUM | 1 (16) | | | | 1 (7) | 1 (26) |
| BEARGRASS | | | | | 1 (7) | |
| WILD STRAWBERRY | 1 (33) | | 1 (8) | 1 (10) | 1 (30) | 1 (36) |
| SWEET CICELY | 1 (50) | | | | 1 (7) | 1 (31) |
| TONGUE-LEAVED PENSTEMON | | | | | | 3 (31) |
| WASHINGTON LILY | 1 (16) | | | | 1 (7) | 1 (21) |
| CORALROOT | 1 (33) | 1 (9) | 1 (25) | 1 (10) | | 1 (5) |
| PHANTOM ORCHID | | 1 (27) | 1 (8) | 1 (30) | 1 (30) | 1 (26) |
| STRIPED CORALROOT | | 1 (18) | 1 (16) | 1 (20) | 1 (7) | |
| REDWOOD VIOLET | | | 1 (8) | | 1 (15) | |
| STARRY SOLOMON'S SEAL | | | | | | |
| WOODLAND PHLOX | 2 (16) | | | 1 (10) | 1 (30) | 1 (10) |
| SCOULER'S HAREBELL | | 5 (9) | | | 2 (7) | |
| SPOTTED CORALROOT | | 1 (9) | 1 (8) | 1 (30) | 1 (38) | 1 (31) |
| DOGBANE | | | 1 (8) | | 1 (14) | 1 (5) |
| VETCH | 10 (16) | | | 1 (10) | 1 (15) | 1 (21) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PEAVINE | 17 (50) | 1 (18) | 1 (16) | | | 1 (5) |
| KELLOGIA | | | 1 (8) | | | 1 (5) |
| REDWOOD IVY | 2 (16) | | 1 (8) | | 2 (30) | |
| TOOTHED WINTERGREEN | | | | | | |
| BEDSTRAW | 1 (33) | 1 (9) | 1 (8) | 1 (20) | 1 (14) | 1 (21) |
| SHARP-TOOTHED ANGELICA | | 1 (9) | | | | |
| PACIFIC HOUND'S TONGUE | 2 (33) | 3 (18) | 1 (8) | | 1 (7) | 1 (5) |
| LUPINE | | | | | | 1 (5) |
| FAIRY-SLIPPER | 1 (16) | | 1 (8) | | 1 (7) | 1 (5) |
| WESTERN VIOLET | | | | | | |
| PINEDROPS | | | | | 1 (7) | |
| CALIFORNIA FALSE HELLEBORE | | | | | | |
| TWAYBLADE | | | | | | |
| HEART-LEAVED ARNICA | | | | | | 2 (5) |
| BROAD-LEAVED ARNICA | | | | | | 15 (5) |
| SMALL-FLOWERED NEMOPHILA | | 1 (9) | | | | |
| SNOWPLANT | | | | | | |
| WESTERN WOOD VIOLET | | | | | 1 (7) | |
| VARIED-LEAF COLLOMIA | 1 (16) | 1 (36) | | | | |
| HILL STAR | | | | | | |
| DEERVETCH | | 1 (9) | | | | 2 (5) |
| VARIED-LEAF MITREWORT | | | | | | 1 (5) |
| LEAFLESS WINTERGREEN | | | | 1 (10) | 1 (7) | 1 (5) |
| SUGAR-SCOOP | | | | | | |
| AMERICAN VETCH | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VIOLET | | | | | 1 (7) | 1 (5) |
| BANEBERRY | | | | | | 1 (10) |
| SPREADING DOGBANE | | | | | | |
| MARBLED WILD GINGER | | | | | | 1 (15) |
| CALIFORNIA TOOTHWORT | | | | | | |
| RED COLUMBINE | | | | | | |
| ARNICA | | | | | | |
| WILD GINGER | | | | | | 1 (5) |
| CALIFORNIA FAWN-LILY | | | | | | 1 (5) |
| SIBERIAN MONTIA | | | | | | |
| IMBRICATE SWORDFERN | | | | | | |
| WESTERN FESCUE | 1 (33) | 7 (27) | 1 (25) | 1 (20) | 1 (30) | 1 (31) |
| LARGE MOUNTAIN BROME | 1 (33) | 1 (9) | 2 (8) | 1 (10) | 3 (7) | 1 (10) |
| FIRE REEDGRASS | | | | | 1 (15) | 1 (5) |
| ALASKA ONIONGRASS | | | 1 (8) | | | 1 (10) |
| SUKSDORF'S BROME | | | | | 1 (7) | |
| BLUE WILDRYE | | | | | | |
| SEDGE | | 1 (9) | | 1 (10) | 1 (7) | 2 (5) |
| BEARDED FESCUE | 3 (33) | 7 (45) | 1 (16) | 1 (10) | 1 (7) | 1 (15) |
| CRINKLEAWN FESCUE | 1 (16) | 2 (9) | | 1 (10) | 1 (23) | |
| BROME | | | | | | 1 (10) |
| CALIFORNIA BROME | | | | | | |
| HARFORD'S ONIONGRASS | 1 (33) | | | 1 (10) | 1 (7) | |
| CALIFORNIA FESCUE | 2 (33) | | | | | |

Table 21. Confirmed locations of white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin sub-series plant associations by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/QUSA-VAME | ABCO-CACH2-PILA/CHUMO | ABCO-CACH2/BENE1/ACTR |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | | | X | X | X |
| ORLEANS RD | X | X | | X | X | X |
| LOWER TRINITY RD | X | X | X | | X | X |
| MAD RIVER RD | X | X | X | | X | X |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | X | | X | X | X |
| HAPPY CAMP RD | X | X | | X | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | X | |
| SCOTT RIVER RD | | | | | | |
| **SHASTA-TRINITY NF** | | | | | | |
| HAYFORK RD | | | | | X | X |
| YOLLA BOLLA RD | X | | | | X | |
| BIG BAR RD | | | | | | |
| **MENDOCINO NF** | | | | | | |
| CORNING RD | | | X | | | |
| COVELO RD | | | X | | | |
| STONYFORD RD | | | X | | | |
| UPPER LAKE RD | | | | | | |

T . Comparison of environment and soil variables by plant association white fir-incense cedar, white fir-Brewer's spruce, and white fir- pin s es.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | ABCO-CACH2/ BENE1/ACTR |
| NUMBER OF PLOTS | 17 | 35 | 9 | 24 | 25 | 30 |
| **ENVIRONMENT:** ELEVATION (ft) | 4630 | 4946 | 4987 | 4504 | 4108 | 3925 |
| ASPECT | S. WEST | S. EAST, S. WEST, N. WEST | S. WEST, S. EAST | N. WEST, N. EAST | N. EAST, EAST | NORTH, WEST, EAST |
| SLOPE (%) | 41 | 36 | 31 | 44 | 42 | 42 |
| RADIATION INDEX | .518 | .472 | .513 | .350 | .450 | .420 |
| SURFACE ROCK(%) | 3 | 3 | 2 | 4 | 4 | 3 |
| **SOILS:** SOIL DEPTH (in) | 36 | 36 | 36 | 31 | 35 | 33 |
| AWC (in) | 4.1 | 3.9 | 4.1 | 2.9 | 3.0 | 4 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 15 | 17 | 21 | 8 | 10 | 8 |
| CO. FRAG. (%) | 22 | 27 | 29 | 36 | 39 | 37 |
| COLOR | very dark brown, black, very dark grayish brown, dark brown | dark brown, very dark brown, very dark grayish brown, dark yellowish brown, black | very dark grayish brown, dark brown, black | dark brown, very dark grayish brown, dark yellowish brown | dark brown, dark yellowish brown, very dark brown | dark brown, very dark grayish brown, dark yellowish brown |
| TEXTURE | gl, gfsl, vgl | gl, gsl, vgl, l | gl, vgcl | gl, vgl, vgcl | gl, vgl, gscl, gsl | gl, gsl, vgl, xgl |
| PARENT MATERIAL | schist, granite, sandstone | sandstone, granite, phyllite | sandstone, schist | granite, mafic, serpentine | schist,sand. granite, mafic, phyllite | granite, mafic, schist, sandstone |
| SOIL FAMILY | Bins, Doty, Shaver | Bins, Nanny, Kafing | Doty | Althouse, Clallam, Coyata, Kafing | Bentpeak, Althouse,Nanny, Clallam, Kafing | Clallam, Coboc, Deadwood, Hugo, Abegg, Kafing |

Table 23. Comparison of stand structure variables by plant association in the white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin sub-series, for stands ≥ 150 years.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | |
| NUMBER OF PLOTS | 12 | 21 | 5 | 22 | 9 | |
| STAND AGE | 201 | 172 | 202 | 306 | 238 | |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 13900 | 12986 | 9849 | 10757 | 11594 | |
| BASAL AREA ($ft^2$) | 404 | 351 | 301 | 314 | 330 | |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 201 | 0 | 116 | 0 | 509 | |
| BASAL AREA ($ft^2$) | 9 | 0 | 5 | 0 | 25 | |
| SITE CLASS | 1A-3 | 1-3 | 2 | 1A-3 | 1A-2 | |
| SITE INDEX | 125-200 | 125-175 | 150 | 125-200 | 150-175 | |
| STAND DENSITY INDEX | 623 | 501 | 448 | 452 | 509 | |

Table 24. Comparison of vegetation variables by plant association in the white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin subseries.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | ABCO-CACH2/ BENE1/ACTR |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 90 | 85 | 85 | 95 | 91 | 97 |
| GRASS COVER | 2 | 6 | <1 | 3 | <1 | <1 |
| FORB COVER | 7 | 6 | 6 | 25 | 14 | 37 |
| SHRUB COVER | 4 | 6 | 2 | 43 | 8 | 23 |
| TREE COVER | 83 | 77 | 82 | 73 | 79 | 87 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 41 (100) | 56 (100) | 35 (100) | 30 (100) | 27 (100) | 26 (100) |
| DOUGLAS-FIR | 24 (70) | 10 (35) | 24 (77) | 32 (100) | 45 (100) | 48 (100) |
| SUGAR PINE | 8 (52) | 5 (26) | 5 (44) | 7 (44) | 6 (68) | 5 (39) |
| INCENSE CEDAR | 19 (100) | 16 (100) | 12 (100) | 4 (18) | | 5 (17) |
| CHINQUAPIN | 3 (17) | | | 1 (3) | 13 (96) | 11 (89) |
| PACIFIC DOGWOOD | 2 (23) | 5 (2) | 1 (11) | 2 (7) | 3 (24) | 5 (57) |
| RED FIR | 1 (5) | 2 (5) | | 6 (51) | 2 (4) | |
| BLACK OAK | 5 (100) | 3 (2) | | | 5 (12) | 1 (7) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PACIFIC MADRONE | 1 (5) | | | | 7 (32) | 6 (46) |
| BIGLEAF MAPLE | 5 (11) | | | | | 5 (21) |
| TANOAK | | | | | 2 (7) | 14 (14) |
| JEFFREY PINE | 20 (5) | 3 (11) | 20 (11) | | 2 (7) | |
| PORT-ORFORD CEDAR | | | | 6 (11) | 6 (12) | |
| BREWER'S SPRUCE | | | | 13 (55) | | |
| PACIFIC YEW | | | | 2 (3) | | 10 (10) |
| CANYON LIVE OAK | | | | | | 2 (10) |
| PONDEROSA PINE | 16 (29) | 9 (8) | 17 (88) | | 4 (7) | 5 (3) |
| WESTERN WHITE PINE | | 3 (2) | | 15 (7) | | |
| OREGON WHITE OAK | | 7 (8) | | | | |

Table 24. Comparison of vegetation variables by plant association in the white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin subseries (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | ABCO-CACH2/ BENE1/ACTR |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| WHITE FIR | 2 (100) | 2 (91) | 7 (100) | 2 (96) | 5 (100) | 4 (92) |
| DOUGLAS-FIR | 1 (47) | 1 (23) | 1 (33) | 1 (18) | 2 (88) | 2 (64) |
| INCENSE CEDAR | 3 (82) | 2 (70) | 5 (66) | 1 (44) | 1 (4) | 1 (14) |
| CHINQUAPIN | 1 (17) | 1 (5) | | 2 (22) | 5 (60) | 3 (78) |
| PACIFIC DOGWOOD | 2 (11) | 1 (5) | | 6 (11) | 4 (28) | 5 (46) |
| CANYON LIVE OAK | 1 (35) | 1 (32) | | | 5 (32) | 2 (28) |
| SUGAR PINE | 1 (17) | 1 (14) | 1 (33) | 1 (11) | 1 (60) | 1 (17) |
| TANOAK | 1 (11) | 2 (8) | 1 (22) | | 1 (24) | 8 (32) |
| RED FIR | | 1 (5) | | 3 (44) | 1 (4) | |
| PACIFIC YEW | | | | 2 (7) | 1 (4) | 4 (21) |
| BLACK OAK | 1 (64) | 1 (5) | 1 (22) | | 1 (4) | 1 (7) |
| CASCARA | 1 (11) | | | | | 1 (14) |
| PACIFIC MADRONE | | | | | | 2 (10) |
| BIGLEAF MAPLE | 1 (11) | | 1 (22) | | | 1 (10) |
| PORT-ORFORD CEDAR | | | | 1 (11) | | 1 (3) |
| BREWER'S SPRUCE | | | | 1 (44) | | |
| JEFFREY PINE | | 1 (2) | | | | |
| WESTERN WHITE PINE | | | | 1 (11) | | |
| OREGON WHITE OAK | | 1 (2) | | | | |

Table 24. Comparison of vegetation variables by plant association in the white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin subseries (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | ABCO-CACH2/ BENE1/ACTR |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| WILD ROSE | 1 (47) | 2 (47) | 1 (33) | 2 (51) | 1 (67) | 2 (82) |
| CREEPING SNOWBERRY | 1 (58) | 1 (58) | 1 (44) | 1 (44) | 1 (52) | 3 (53) |
| HAZELNUT | 4 (70) | 4 (23) | 3 (22) | 2 (7) | 2 (44) | 5 (75) |
| DWARF OREGON-GRAPE | 1 (29) | 9 (14) | 1 (11) | 8 (55) | 6 (44) | 13 (96) |
| SADLER OAK | 1 (5) | | | 24 (100) | 2 (20) | 5 (32) |
| TRAILING BLACKBERRY | 1 (41) | 1 (17) | 1 (11) | 1 (33) | 1 (28) | 1 (78) |
| HUCKLEBERRY OAK | 2 (11) | 1 (5) | 3 (11) | 2 (22) | 3 (7) | 2 (7) |
| THIMBLEBERRY | | 26 (5) | | 2 (7) | 1 (16) | 1 (21) |
| OREGON BOXWOOD | 1 (11) | 1 (5) | | 2 (40) | 1 (20) | 2 (35) |
| MOUNTAIN MAPLE | | 1 (2) | | 2 (33) | | |
| OCEANSPRAY | 2 (17) | 2 (8) | | 2 (18) | 2 (4) | 3 (7) |
| RED HUCKLEBERRY | | 1 (2) | | 3 (18) | | 5 (10) |
| PINEMAT MANZANITA | | | | 4 (14) | 7 (20) | |
| SERVICEBERRY | 1 (5) | 1 (2) | | 3 (28) | 1 (8) | 1 (13) |
| DESERT GOOSEBERRY | 1 (5) | 1 (20) | | | | 1 (3) |
| THIN-LEAVED HUCKLEBERRY | | | | 12 (77) | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VINE MAPLE | | | | | | 3 (10) |
| SNOWBERRY | | | | | 1 (7) | 1 (3) |
| BLACKCAP | | | | | | |
| SLENDER SALAL | | | | 9 (11) | | 2 (3) |
| BITTER CHERRY | | 2 (8) | | | 1 (4) | |
| POISON OAK | | | | | | 1 (7) |
| GREENLEAF MANZANITA | | | | 1 (3) | 1 (7) | |
| TALL OREGON-GRAPE | 2 (11) | 1 (2) | | | 1 (7) | 1 (3) |
| DEERBRUSH | 2 (5) | | | | | 2 (3) |
| STICKY CURRANT | | | | 1 (7) | 1 (4) | |
| LOBB'S GOOSEBERRY | | 2 (2) | | 1 (3) | 1 (4) | |
| RED-FLOWERING CURRANT | | | | | | |
| SNOWBRUSH | | | | | | 2 (7) |
| PACIFIC RHODODENDRON | | | | | | |
| NUTALL WILLOW | | | | 1 (3) | | |
| PYGMY HOLLYGRAPE | | | 1 (11) | | 1 (4) | |
| CREEPING OREGON-GRAPE | | | | 1 (3) | | |
| SITKA ALDER | | | | | | |
| SQUAWCARPET | | | | | | |
| BOXLEAF SILKTASSEL | | 1 (2) | | | 1 (4) | |
| CALIFORNIA MOUNTAIN ASH | | | | 1 (3) | | |

Table 24. Comparison of vegetation variables by plant association in the white fir-incense cedar, white fir-Brewer's spruce, and white fir-chinquapin subseries (continued).

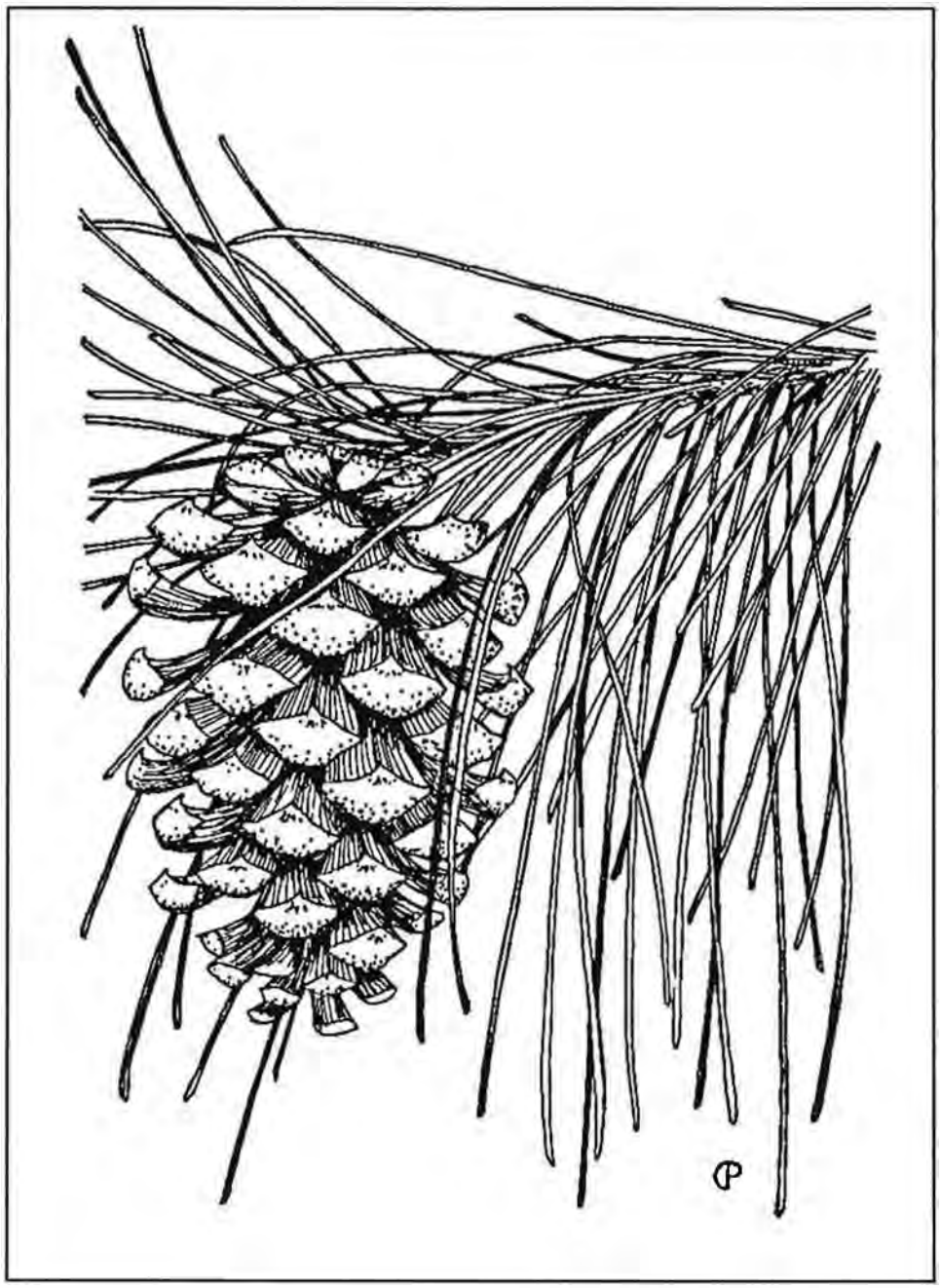
| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | ABCO-LIDE3-QUKE | ABCO-LIDE3/PYPI | ABCO-LIDE3-PIPO | ABCO-PIBR/ QUSA-VAME | ABCO-CACH2- PILA/CHUMO | ABCO-CACH2/ BENE1/ACTR |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| PRINCE'S PINE | 3 (23) | 2 (17) | | 7 (92) | 6 (92) | 5 (82) |
| WHITE-VEINED WINTERGREEN | 1 (64) | 1 (67) | 1 (55) | 1 (77) | 1 (80) | 1 (71) |
| VANILLALEAF | | 3 (5) | | 6 (66) | 12 (20) | 13 (85) |
| HOOKER'S FAIRYBELL | 1 (17) | 2 (17) | 1 (22) | 1 (44) | 1 (36) | 1 (53) |
| RATTLESNAKE PLANTAIN | 1 (11) | 1 (17) | 1 (11) | 1 (85) | 1 (36) | 1 (64) |
| HAWKWEED | 1 (41) | 1 (38) | 1 (44) | 1 (14) | 1 (40) | 1 (21) |
| TRAILPLANT | 1 (29) | 2 (44) | 1 (33) | 2 (14) | 1 (28) | 1 (32) |
| STARFLOWER | 1 (11) | 1 (5) | 1 (33) | 2 (22) | 1 (20) | 1 (39) |
| LITTLE PRINCE'S PINE | 1 (11) | 1 (41) | 1 (11) | 1 (14) | 1 (7) | 1 (21) |
| BRACKENFERN | 2 (70) | 1 (11) | 1 (33) | 1 (3) | 2 (48) | 1 (39) |
| SMALL BEDSTRAW | 1 (17) | 1 (32) | 1 (22) | 1 (7) | 1 (7) | 1 (3) |
| WESTERN MODESTY | 7 (17) | | 30 (11) | 3 (11) | 5 (52) | 14 (71) |
| IRIS | 1 (29) | 1 (23) | 1 (22) | 1 (7) | 1 (48) | 1 (35) |
| TWINFLOWER | | | | 24 (40) | 7 (20) | 13 (71) |
| STREAM VIOLET | 1 (17) | 1 (23) | 1 (22) | 1 (3) | 1 (7) | 1 (25) |
| CALIFORNIA HAREBELL | | 2 (14) | | 2 (14) | 1 (12) | 1 (7) |
| ONE-SIDED WINTERGREEN | | 1 (5) | | 1 (51) | 1 (7) | 1 (28) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SWORDFERN | 1 (23) | 1 (11) | 1 (11) | 1 (25) | 1 (7) | 1 (25) |
| WHITE INSIDE-OUT FLOWER | | 1 (2) | | 1 (14) | 7 (4) | 2 (28) |
| FALSE SOLOMON'S SEAL | 1 (5) | 1 (5) | 1 (33) | | 1 (12) | 1 (21) |
| MOUNTAIN DOGBANE | 1 (5) | | | 1 (18) | 1 (28) | 1 (21) |
| QUEEN'S CUP | | | 2 (22) | 2 (40) | 1 (4) | 2 (21) |
| THREE-LEAVED ANEMONE | | 4 (8) | | 2 (25) | | 1 (7) |
| STICKY STARWORT | 3 (11) | 1 (29) | 1 (11) | 1 (11) | 1 (7) | |
| RAYLESS ARNICA | | | 1 (11) | 2 (29) | 1 (44) | 1 (3) |
| SHELTON'S VIOLET | 3 (35) | 2 (41) | 1 (55) | | | |
| WHITE TRILLIUM | 1 (5) | 1 (8) | 1 (11) | 1 (29) | | 1 (17) |
| BEARGRASS | | | | 3 (29) | 7 (16) | 2 (14) |
| WILD STRAWBERRY | 1 (11) | 1 (8) | 1 (11) | 2 (18) | 1 (4) | 1 (28) |
| SWEET CICELY | 1 (11) | 2 (8) | | 1 (3) | | 1 (10) |
| TONGUE-LEAVED PENSTEMON | 1 (5) | 2 (17) | | 1 (14) | 1 (4) | 1 (3) |
| WASHINGTON LILY | 1 (5) | 1 (11) | | 1 (18) | 1 (4) | 1 (7) |
| CORALROOT | 1 (11) | 1 (2) | 1 (11) | 1 (7) | 1 (24) | 1 (21) |
| PHANTOM ORCHID | 1 (23) | 1 (5) | 1 (22) | 1 (7) | 1 (12) | 1 (17) |
| STRIPED CORALROOT | 1 (11) | 1 (11) | 1 (22) | 1 (11) | 1 (7) | 1 (10) |
| REDWOOD VIOLET | | | | 1 (25) | 1 (12) | 3 (25) |
| STARRY SOLOMON'S SEAL | 10 (5) | 2 (11) | | 1 (14) | | |
| WOODLAND PHLOX | | 1 (5) | | | 1 (4) | 1 (14) |
| SCOULER'S HAREBELL | 1 (5) | 1 (5) | 1 (11) | 1 (3) | 1 (4) | 1 (10) |
| SPOTTED CORALROOT | 1 (11) | 1 (5) | 1 (11) | 1 (11) | 1 (20) | 1 (14) |
| DOGBANE | | | | | | |
| VETCH | 1 (5) | | | | 1 (4) | 1 (3) |

| | | | | | | |
|---|---|---|---|---|---|---|
| PEAVINE | | 1 (5) | 1 (11) | | | |
| KELLOGIA | 1 (5) | 1 (8) | | | | |
| REDWOOD IVY | | | | 5 (3) | 2 (28) | 11 (21) |
| TOOTHED WINTERGREEN | | | | | | 1 (3) |
| BEDSTRAW | | | 1 (22) | | 1 (7) | 1 (10) |
| SHARP-TOOTHED ANGELICA | | | | 2 (3) | | |
| PACIFIC HOUND'S TONGUE | 1 (17) | 1 (5) | | | | |
| LUPINE | | 1 (5) | 1 (11) | 2 (7) | 1 (4) | 1 (3) |
| FAIRY-SLIPPER | | 1 (2) | 1 (22) | 1 (3) | 1 (7) | |
| WESTERN VIOLET | | | | | 1 (4) | 1 (3) |
| PINEDROPS | 1 (5) | 1 (2) | | | | |
| CALIFORNIA FALSE HELLEBORE | | 1 (5) | | 1 (3) | | |
| TWAYBLADE | | | | 1 (11) | 1 (4) | 1 (7) |
| HEART-LEAVED ARNICA | | 2 (2) | | 5 (3) | | 2 (3) |
| BROAD-LEAVED ARNICA | | | | 5 (3) | | |
| SMALL-FLOWERED NEMOPHILA | 3 (5) | 3 (5) | 1 (11) | | | |
| SNOWPLANT | | | | 1 (3) | 1 (7) | |
| WESTERN WOOD VIOLET | | 1 (2) | | | | |
| VARIED-LEAF COLLOMIA | 1 (11) | | | | 1 (7) | |
| HILL STAR | | 5 (8) | | | | |
| DEERVETCH | | | | | | 2 (3) |
| VARIED-LEAF MITREWORT | | | | | | |
| LEAFLESS WINTERGREEN | | 1 (2) | | 1 (3) | | 1 (3) |
| SUGAR-SCOOP | | | | 1 (3) | | 1 (3) |
| AMERICAN VETCH | | | | | | 1 (3) |

| | | | | | | |
|---|---|---|---|---|---|---|
| VIOLET | | | 1 (11) | | | |
| BANEBERRY | | | | | | 1 (3) |
| SPREADING DOGBANE | | | | | | |
| MARBLED WILD GINGER | | | | | 1 (4) | 3 (7) |
| CALIFORNIA TOOTHWORT | | 1 (2) | | | | |
| RED COLUMBINE | | | | | | |
| ARNICA | | 1 (2) | | | | |
| WILD GINGER | | | | | 1 (4) | 1 (7) |
| CALIFORNIA FAWN-LILY | | 1 (5) | 1 (11) | | | |
| SIBERIAN MONTIA | | 1 (2) | | | | |
| IMBRICATE SWORDFERN | | | | | | |
| WESTERN FESCUE | | 6 (23) | 1 (11) | 1 (11) | 1 (16) | 1 (21) |
| LARGE MOUNTAIN BROME | 2 (11) | 5 (14) | 1 (22) | 1 (3) | | 1 (14) |
| FIRE REEDGRASS | 2 (23) | 2 (14) | | 1 (3) | | |
| ALASKA ONIONGRASS | | 1 (14) | | 2 (7) | | 1 (3) |
| SUKSDORF'S BROME | | | | 1 (14) | | 2 (7) |
| BLUE WILDRYE | 17 (23) | 4 (41) | 1 (22) | 1 (3) | | |
| SEDGE | | 13 (8) | 1 (22) | 7 (11) | | 1 (3) |
| BEARDED FESCUE | | 1 (8) | | | 1 (4) | |
| CRINKLELAWN FESCUE | 1 (5) | 5 (2) | | | 1 (4) | 1 (3) |
| BROME | | | | 1 (3) | 4 (12) | |
| CALIFORNIA BROME | 1 (5) | 1 (2) | | | | |
| HARFORD'S ONIONGRASS | | | | | | |
| CALIFORNIA FESCUE | 1 (5) | 1 (5) | | | | |

# JEFFREY PINE SERIES



## JEFFREY PINE-WHITE FIR/IRIS
## PIJE-ABCO/IRI

### DESCRIPTIONS

**Environment Summary:** This type has the highest mean elevation 4826 feet, in the Jeffrey pine series (Table 6). It is found on hot, rounded ridgetops and upper one/third slopes, on gentle southeast facing slopes with low surface rock (Table 9). Radiation index is the second highest in the Jeffrey pine series, indicating that these are hot sites. This is modified somewhat by the high elevation and moderate water storage capacity of the coarse textured, moderately deep soils. This type was found on the Orleans, Lower Trinity, Mad River, and Happy Camp Ranger Districts. It is probably located on the Ukonom Ranger District as well.

**Soil Summary:** This type is found within the frigid soil temperature regime, on slightly acidic ???, granite, sandstone and mafic parent material (Table 10). The soils are ???? in color, moderately deep, coarse textured, with moderate coarse fragments (33%), and thick A horizon (18 inches). Available water holding capacity is ??.

Table 9. Environment and timber summary for the Jeffrey pine-white fir/iris type (PIJE-ABCO/IRI) N=7.

| **RANGER DISTRICTS** | LOWER TRINITY, MAD RIVER, ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4826 | 4100 | 5140 | 139 |
| SLOPE (%) | 30 | 0 | 67 | 8 |
| SLOPE POSITION | RIDGETOP, UPPER 1/3 | | | |
| ASPECT (deg) | 163 | 82 | 242 | .020 |
| SOLAR RADIATION INDEX * | .530 | .478 | .592 | 1 |
| SURFACE ROCK | 2 | 0 | 10 | |
| STAND AGE | 253 | 115 | 400 | 36 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10136 | 3177 | 17114 | 1681 |
| BASAL AREA ($ft^2$) | 270 | 120 | 373 | 32 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 257 | 0 | 1535 | 216 |
| BASAL AREA ($ft^2$) | 15 | 0 | 93 | 13 |
| SITE CLASS | 2,4 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 410 | 242 | 693 | 58 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 10. Soils summary for the Jeffrey pine-white fir/iris type (PIJE-ABCO/IRI) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 34 | 25 | 40+ |
| AWC (inches) | 3.0 | 1.1 | 5.2 |
| PARENT ROCK | Granite, Sandstone, Mafic, Schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 18 | 12 | 25 |
| COARSE FRAGMENT (%) | 33 | 15 | 58 |
| pH | 6.1 | 5.3 | 6.8 |
| COLOR | very dark brown, dark brown | | |
| TEXTURE | gsl, gl, vgl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 16 | 7 | 27 |
| COARSE FRAGMENT (%) | 40 | 15 | 70 |
| pH | 6.1 | 5.0 | 8.0 |
| COLOR | dark yellowish brown, olive brown | | |
| TEXTURE | gsl, gcl, stsl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 11. Vegetation summary for the Jeffrey pine-white fir/iris type (PIJE-ABCO/IRI) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 84 | 70 | 99 | 4 |
| GRASS COVER | 4 | 0 | 12 | 2 |
| HERB COVER | 4 | 1 | 10 | 1 |
| SHRUB COVER | 2 | 1 | 6 | 1 |
| TREE COVER | 73 | 50 | 99 | 7 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 29 | 100 |
| DOUGLAS-FIR (PSME) | 10 | 29 |
| INCENSE CEDAR (LIDE3) | 10 | 86 |
| SUGAR PINE (PILA) | 7 | 71 |
| WHITE FIR (ABCO) | 29 | 86 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 1 | 57 |
| DOUGLAS-FIR (PSME) | 1 | 29 |
| INCENSE CEDAR (LIDE3) | 1 | 57 |
| SUGAR PINE (PILA) | 1 | 43 |
| WHITE FIR (ABCO) | 1 | 100 |
| CANYON LIVE OAK (QUCH2) | 2 | 57 |
| **SHRUBS** | | |
| GREENLEAF MANZANITA (ARPA9) | 2 | 29 |
| SNOWBERRY (SYMO) | 1 | 43 |
| WILD ROSE (ROGY) | 1 | 57 |
| HAZEL (COCOC) | 2 | 57 |

Table 11. Vegetation summary for the Jeffrey pine-white fir/iris type (PIJE-ABCO/IRI) N=7 (continued).

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS & GRASSES** | | |
| IRIS (IRI) | 2 | 100 |
| PRINCES PINE (CHUMO) | 3 | 29 |
| HAWKWEED (HIAL) | 1 | 71 |
| BRACKEN FERN (PTAQL) | 2 | 57 |
| WINTERGREEN (PYPI) | 1 | 57 |
| LUPINE (LUP2) | 1 | 29 |
| DOGBANE (APPU) | 1 | 43 |
| FIREWEED (EPI1) | 1 | 29 |
| STREAM VIOLET (VIGL) | 1 | 43 |
| MADIA SP. (MAD1) | 1 | 29 |
| STICKY STARWORT (STJA) | 1 | 29 |
| WESTERN FESCUE (FEOC) | 9 | 29 |
| BLUE WILD RYE (ELGL) | 1 | 43 |
| REEDGRASS (CAKO) | 1 | 29 |
| BEARDED FESCUE (FESU1) | 1 | 29 |

Table 12. Environment and timber summary for the Jeffrey pine-incense cedar/huckleberry oak type (PIJE-LIDE3/QUVA) N=18.

| RANGER DISTRICTS | LOWER TRINITY, HAPPY CAMP, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4618 | 4000 | 5240 | 70 |
| SLOPE (%) | 23 | 0 | 46 | 3 |
| ASPECT (deg) | 201 | 116 | 286 | |
| SOLAR RADIATION INDEX * | .500 | .442 | .548 | .010 |
| SURFACE ROCK | 6 | 1 | 15 | 1 |
| STAND AGE | 306 | 91 | 667 | 38 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5381 | 328 | 9126 | 821 |
| BASAL AREA ($ft^2$) | 212 | 91 | 307 | 18 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 334 | 198 | 591 | 29 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 13. Soils summary for the Jeffrey pine-incense cedar/huckleberry oak type (PIJE-LIDE3/QUVA) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 23 | 11 | 40+ |
| AWC (inches) | 2.0 | 0.5 | 3.8 |
| PARENT ROCK | Serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 14 |
| COARSE FRAGMENT (%) | 31 | 7 | 62 |
| pH | 6.4 | 5.2 | 7.0 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, vgcl, l | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 17 | 7 | 35 |
| COARSE FRAGMENT (%) | 41 | 15 | 76 |
| pH | 6.8 | 5.5 | 8.0 |
| COLOR | dark brown, dark yellowish brown, dark grayish brown | | |
| TEXTURE | vgl, gcl,vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 14. Vegetation summary for the Jeffrey pine-incense cedar/huckleberry oak type (PIJE-LIDE3/QUVA) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 83 | 35 | 99 | 4 |
| GRASS COVER | 1 | 0 | 9 | 1 |
| HERB COVER | 7 | 1 | 25 | 2 |
| SHRUB COVER | 49 | 0 | 95 | 8 |
| TREE COVER | 53 | 7 | 80 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 25 | 100 |
| DOUGLAS-FIR (PSME) | 16 | 78 |
| INCENSE CEDAR (LIDE3) | 11 | 94 |
| SUGAR PINE (PILA) | 7 | 61 |
| WHITE FIR (ABCO) | 8 | 61 |
| WESTERN WHITE PINE (PIMO3) | 7 | 39 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 1 | 72 |
| DOUGLAS-FIR (PSME) | 1 | 56 |
| INCENSE CEDAR (LIDE3) | 1 | 89 |
| SUGAR PINE (PILA) | 1 | 56 |
| WHITE FIR (ABCO) | 2 | 94 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 46 | 100 |
| PINEMAT MANZANITA (ARNE2) | 13 | 56 |
| COFFEEBERRY (RHCA2) | 1 | 22 |
| GREENLEAF MANZANITA (ARPA9) | 3 | 39 |
| SERVICEBERRY (AMFL) | 3 | 28 |
| BOXLEAF SILKTASSEL (GABU2) | 2 | 39 |
| AMARANTHUS ALBUS (AMAL) | 1 | 22 |
| PYGMY OREGON GRAPE (BEPU) | 2 | 22 |

Table 14. Vegetation summary for the Jeffrey pine-incense cedar/huckleberry oak type (PIJE-LIDE3/QUVA) N=18 (continued).

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS & GRASSES** | | |
| BEARGRASS (XETE) | 7 | 67 |
| IRIS (IRI) | 1 | 33 |
| PRINCES PINE (CHUMO) | 1 | 67 |
| HAWKWEED (HIAL) | 1 | 28 |
| TOOTHLEAF PYROLA (PYPID) | 1 | 39 |
| WINTERGREEN (PYPI) | 1 | 22 |
| DISCOID ARNICA (ARDI3) | 2 | 44 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 39 |
| ANGELICA (ANAR3) | 1 | 22 |

Table 15. Environment and timber summary for the Jeffrey pine-incense cedar/huckleberry oak/beargrass type (PIJE-LIDE3/QUVA/XETE) N=16.

| RANGER DISTRICT | ORLEANS, HAPPY CAMP, UKONOM HAPPY LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 4139 | 3520 | 4720 | 91 |
| SLOPE (%) | 35 | 5 | 55 | 3 |
| ASPECT (deg) | 231 | 110 | 352 | |
| SOLAR RADIATION INDEX * | .460 | .045 | .572 | .040 |
| SURFACE ROCK | 40 | 1 | 80 | 8 |
| STAND AGE | 252 | 91 | 609 | 37 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 2539 | 535 | 6518 | 421 |
| BASAL AREA ($ft^2$) | 102 | 43 | 220 | 12 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 4,5 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 156 | 79 | 354 | 18 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 16. Soils summary for the Jeffrey pine-incense cedar/huckleberry oak/beargrass type (PIJE-LIDE3/QUVA/XETE) N=16.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Frigid | | |
| DEPTH ** (inches) | 26 | 16 | 40+ |
| AWC (inches) | 2.0 | 1.0 | 4.1 |
| PARENT ROCK | Serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 9 |
| COARSE FRAGMENT (%) | 39 | 15 | 70 |
| pH | 6.3 | 5.4 | 7.0 |
| COLOR | dark yellowish brown, dark brown, strong brown | | |
| TEXTURE | gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 21 | 8 | 37 |
| COARSE FRAGMENT (%) | 46 | 2 | 75 |
| pH | 6.8 | 5.9 | 8.0 |
| COLOR | yellowish brown, dark yellowish strong brown | | |
| TEXTURE | vgl, gl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 17. Vegetation summary for the Jeffrey pine-incense cedar/ huckleberry oak/beargrass type (PIJE-LIDE3/QUVA/XETE) N=16.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 89 | 60 | 99 | 2 |
| GRASS COVER | 1 | 0 | 5 | 1 |
| HERB COVER | 12 | 1 | 65 | 4 |
| SHRUB COVER | 71 | 6 | 95 | 7 |
| TREE COVER | 37 | 3 | 70 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 16 | 100 |
| DOUGLAS-FIR (PSME) | 7 | 88 |
| INCENSE CEDAR (LIDE3) | 5 | 88 |
| SUGAR PINE (PILA) | 16 | 88 |
| KNOBCONE PINE (PIAT1) | 2 | 38 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 1 | 88 |
| DOUGLAS-FIR (PSME) | 1 | 56 |
| INCENSE CEDAR (LIDE3) | 1 | 75 |
| SUGAR PINE (PILA) | 2 | 75 |
| WHITE FIR (ABCO) | 1 | 25 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 48 | 100 |
| PINEMAT MANZANITA (ARNE2) | 8 | 75 |
| SQUAW CARPET (CEPR) | 3 | 63 |
| COFFEEBERRY (RHCA2) | 1 | 75 |
| GREENLEAF MANZANITA (ARPA9) | 4 | 69 |
| CREEPING OREGON-GRAPE(BERE) | 1 | 63 |
| RED HUCKLEBERRY (VAPA) | 9 | 75 |
| BOXLEAF SILKTASSEL (GABU2) | 4 | 38 |
| AMARANTHUS ALBUS (AMAL) | 2 | 44 |
| SADLER OAK (QUSA) | 6 | 38 |
| WHITELEAF MANZANITA (ARV13) | 16 | 25 |

Table 17. Vegetation summary for the Jeffrey pine-incense cedar/ huckleberry oak/beargrass type (PIJE-LIDE3/QUVA/XETE) N=16 (continued).

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS & GRASSES** | | |
| BEARGRASS (XETE) | 1 | 100 |
| TOOTHLEAF PYROLA (PYPID) | 1 | 44 |
| WINECUP LILY (LIBO1) | 1 | 56 |
| WESTERN MODESTY (WHMO) | 1 | 50 |
| IDAHO FESCUE (FEID) | 1 | 25 |
| SEDGE SP. (CAR) | 1 | 38 |

Table 18. Environment and timber summary for the Jeffrey pine-Douglas-fir/huckleberry oak/California fescue type (PIJE-PSME/QUVA/FECA) N=5.

| RANGER DISTRICT | HAPPY CAMP, UKONOM, ORLEANS, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3862 | 2160 | 5560 | 655 |
| SLOPE (%) | 33 | 8 | 52 | 7 |
| ASPECT (deg) | 156 | 68 | 245 | |
| SOLAR RADIATION INDEX * | .480 | .406 | .561 | .030 |
| SURFACE ROCK | 9 | 0 | 20 | 5 |
| STAND AGE | 221 | 28 | 350 | 55 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 3098 | 40 | 5222 | 11 |
| BASAL AREA ($ft^2$) | 131 | 11 | 187 | 41 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 5 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 238 | 44 | 417 | 76 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 19. Soils summary for the Jeffrey pine-Douglas-fir /huckleberry oak/California fescue type (PIJE-PSME/QUVA/FECA) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Frigid | | |
| DEPTH ** (inches) | 19 | 11 | 34 |
| AWC (inches) | 2.6 | 1.2 | 4.8 |
| PARENT ROCK | Serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 2 | 1 | 3 |
| COARSE FRAGMENT (%) | 31 | 20 | 50 |
| pH | 6.7 | 6.1 | 7.3 |
| COLOR | dark brown, dark reddish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, gcl | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 17 | 9 | 31 |
| COARSE FRAGMENT (%) | 23 | 10 | 35 |
| pH | 6.8 | 6.3 | 7.5 |
| COLOR | dark brown, reddish brown, dark yellowish brown brown | | |
| TEXTURE | gl, gcl, scl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 20. Vegetation summary for the Jeffrey pine-Douglas-fir/ huckleberry oak/California fescue type (PIJE-PSME/QUVA/FECA) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 80 | 95 | 3 |
| GRASS COVER | 35 | 2 | 73 | 12 |
| HERB COVER | 12 | 3 | 40 | 7 |
| SHRUB COVER | 42 | 25 | 60 | 7 |
| TREE COVER | 61 | 45 | 75 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 18 | 100 |
| DOUGLAS-FIR (PSME) | 18 | 100 |
| INCENSE CEDAR (LIDE3) | 14 | 80 |
| SUGAR PINE (PILA) | 9 | 60 |
| KNOBCONE PINE (PIAT1) | 13 | 40 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 5 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 100 |
| INCENSE CEDAR (LIDE3) | 7 | 80 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 27 | 100 |
| PINEMAT MANZANITA (ARNE2) | 7 | 100 |
| CREEPING OREGON-GRAPE(BERE) | 2 | 40 |
| SNOWBERRY (SYMO) | 2 | 40 |
| WHITELEAF MANZANITA (ARVI3) | 2 | 40 |
| BUCK BRUSH (CECU2) | 4 | 40 |
| **HERBS & GRASSES** | | |
| BEARGRASS (XETE) | 16 | 80 |
| DIFFUSE PHLOX (PHDI3) | 2 | 20 |
| CALIFORNIA FESCUE (FECA) | 29 | 100 |
| IDAHO FESCUE (FEID) | 2 | 40 |

Table 21. Environment and timber summary for the Jeffrey pine/ sadler oak/beargrass type (PIJE/QUSA/XETE) N=5.

| RANGER DISTRICT | ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3768 | 3280 | 4000 | 126 |
| SLOPE (%) | 24 | 14 | 37 | 4 |
| ASPECT (deg) | 105 | 50 | 160 | |
| SOLAR RADIATION INDEX * | .460 | .371 | .543 | .040 |
| SURFACE ROCK | 8 | 0 | 35 | 7 |
| STAND AGE | 395 | 71 | 526 | 87 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5170 | 3010 | 8705 | 1049 |
| BASAL AREA ($ft^2$) | 170 | 80 | 267 | 41 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 313 | 0 | 1438 | 282 |
| BASAL AREA ($ft^2$) | 25 | 0 | 93 | 17 |
| SITE CLASS | 3 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 350 | 134 | 675 | 112 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 22. Soils summary for the Jeffrey pine/sadler oak/beargrass type (PIJE/QUSA/XETE) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Frigid | | |
| DEPTH ** (inches) | 34 | 32 | 37 |
| AWC (inches) | 2.6 | 2.0 | 3.0 |
| PARENT ROCK | Serpentine, Semischist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 11 |
| COARSE FRAGMENT (%) | 16 | 5 | 25 |
| pH | 6.3 | 6.0 | 6.5 |
| COLOR | dark yellowish brown, yellowish brown, light yellowish brown | | |
| TEXTURE | gl, l | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 28 | 22 | 32 |
| COARSE FRAGMENT (%) | 25 | 7 | 70 |
| pH | 6.2 | 5.5 | 7.0 |
| COLOR | olive brown, light olive brown, olive yellow | | |
| TEXTURE | gl, cl, vkcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 23. Vegetation summary for the Jeffrey pine/sadler oak/ beargrass type (PIJE/QUSA/XETE) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 90 | 99 | 2 |
| GRASS COVER | < 1 | 0 | 1 | < 1 |
| HERB COVER | 20 | 5 | 40 | 6 |
| SHRUB COVER | 51 | 12 | 95 | 16 |
| TREE COVER | 68 | 25 | 95 | 13 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 29 | 100 |
| DOUGLAS-FIR (PSME) | 11 | 100 |
| SUGAR PINE (PILA) | 13 | 100 |
| WHITE FIR (ABCO) | 13 | 40 |
| CHINQUAPIN (CACH2) | 26 | 80 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 2 | 60 |
| DOUGLAS-FIR (PSME) | 1 | 100 |
| INCENSE CEDAR (LIDE3) | 3 | 40 |
| SUGAR PINE (PILA) | 2 | 100 |
| WHITE FIR (ABCO) | 2 | 60 |
| CHINQUAPIN (CACH2) | 1 | 60 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 1 | 40 |
| PINEMAT MANZANITA (ARNE2) | 28 | 40 |
| SQUAW CARPET (CEPR) | 2 | 40 |
| COFFEEBERRY (RHCA2) | 1 | 40 |
| CREEPING OREGON-GRAPE(BERE) | 1 | 40 |
| RED HUCKLEBERRY (VAPA) | 4 | 60 |
| SADLER OAK (QUSA) | 36 | 100 |
| DWARF SALAL (GAOV) | 4 | 60 |
| **HERBS & GRASSES** | | |
| BEARGRASS (XETE) | 19 | 100 |
| IRIS (IRI) | 1 | 40 |
| PRINCES PINE (CHUMO) | 1 | 60 |
| TOOTHLEAF PYROLA (PYPID) | 1 | 40 |
| BRACKEN FERN (PTAQL) | 1 | 80 |
| CORN LILLY (VECA1) | 1 | 40 |
| APOCYNUM (APOA3) | 1 | 60 |

Table 24. Environment and timber summary for the Jeffrey pine/ Idaho fescue type (PIJE/FEID) N=24.

| RANGER DISTRICT | GASQUET, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2515 | 1740 | 5280 | 222 |
| SLOPE (%) | 16 | 3 | 32 | 2 |
| ASPECT (deg) | 224 | 120 | 328 | |
| SOLAR RADIATION INDEX * | .500 | .424 | .563 | .010 |
| SURFACE ROCK | 14 | 1 | 40 | 2 |
| STAND AGE | 166 | 65 | 342 | 14 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 2279 | 284 | 15004 | 651 |
| BASAL AREA ($ft^2$) | 103 | 30 | 585 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 90 | 0 | 1986 | 90 |
| BASAL AREA ($ft^2$) | 3 | 0 | 80 | 3 |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | | | | |
| STAND DENSITY INDEX | 178 | | 1058 | 42 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 25. Soils summary for the Jeffrey pine/Idaho fescue type (PIJE/FEID) N=24.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic, Frigid | | |
| DEPTH ** (inches) | 22 | 11 | 40+ |
| AWC (inches) | 2.2 | 0.9 | 5.6 |
| PARENT ROCK | Serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 14 |
| COARSE FRAGMENT (%) | 25 | 10 | 62 |
| pH | 7.3 | 6.7 | 7.9 |
| COLOR | dark reddish brown, dark brown, very reddish brown | | |
| TEXTURE | gl, l, xstl | | |
| SUB-SURFACE HORIZON: | | | |
| THICKNESS (inches) | 15 | 1 | 31 |
| COARSE FRAGMENT (%) | 45 | 12 | 75 |
| pH | 7.5 | 7.0 | 8.0 |
| COLOR | dark brown, dark yellowish brown, reddish brown, dark reddish brown, dark red | | |
| TEXTURE | vgl, vstl, sicl, gl, vkcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 26. Vegetation summary for the Jeffrey pine/Idaho fescue type (PIJE/FEID) N=24.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 78 | 35 | 99 | 4 |
| GRASS COVER | 56 | 6 | 90 | 5 |
| HERB COVER | 17 | 1 | 55 | 3 |
| SHRUB COVER | 15 | 0 | 65 | 3 |
| TREE COVER | 25 | 15 | 35 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 21 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 50 |
| CALIFORNIA BAY (UMCA1) | 1 | 21 |
| INCENSE CEDAR (LIDE3) * | 10 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 1 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 33 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 5 | 63 |
| PINEMAT MANZANITA (ARNE2) | 8 | 79 |
| SQUAW CARPET (CEPR) | 3 | 92 |
| COFFEEBERRY (RHCA2) | 2 | 54 |
| CREEPING OREGON-GRAPE(BERE) | 1 | 21 |
| OCEAN SPRAY (HODI) | 2 | 75 |
| SERVICEBERRY (AMFL) | 1 | 54 |
| HAIRY MANZANITA (ARCO) | 2 | 33 |
| DWARF JUNIPER (JUCOS) | 3 | 29 |

* Incense cedar cover > 10% on Lower Trinity Ranger District.

Table 26. Vegetation summary for the Jeffrey pine/Idaho fescue type (PIJE/FEID) N=24 (continued).

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **HERBS & GRASSES** | | |
| YARROW (ACLA2) | 1 | 75 |
| INDIAN PAINTBRUSH (CASC) | 1 | 67 |
| LACE FERN (ASCA1) | 1 | 63 |
| MORNING-GLORY (CON6) | 1 | 63 |
| BUTTERCUP (RAN3) | 1 | 63 |
| DEATH CAMMUS (ZIG) | 1 | 63 |
| ASTER (AST1) | 1 | 58 |
| HORKELIA (HOSE) | 18 | 58 |
| VIOLET OCELLATA (VIOC) | 1 | 54 |
| DIFFUSE PHLOX (PHDI3) | 1 | 38 |
| WHITE SCHOENOLIRION (SCAL) | 3 | 46 |
| BRIDGE'S BRODIAEA (BRBR3) | 1 | 42 |
| CLOVER (TRI9) | 2 | 33 |
| VIOLET SP. (VIO3) | 1 | 29 |
| ONION SP. (ALL2) | 1 | 29 |
| BRODIAEA SP. (BRO4) | 1 | 38 |
| PUSSY EARS (CATO) | 1 | 38 |
| RED SILENE (SIHO) | 1 | 29 |
| SNAKEROOT SP. (SAN4) | 2 | 25 |
| BLUE-EYED GRASS (SIBE) | 1 | 25 |
| VETCH SP. (VIC2) | 1 | 21 |
| PHLOX SP. (PHL3) | 1 | 21 |
| STONECROP SP. (SED) | 1 | 21 |
| WHITE CLOVER (TRRE) | 1 | 21 |
| CALIFORNIA FESCUE (FECA) | 11 | 88 |
| IDAHO FESCUE (FEID) | 47 | 100 |

Appendix Q. List of plant species identified in the Jeffrey pine series with summary statistics.

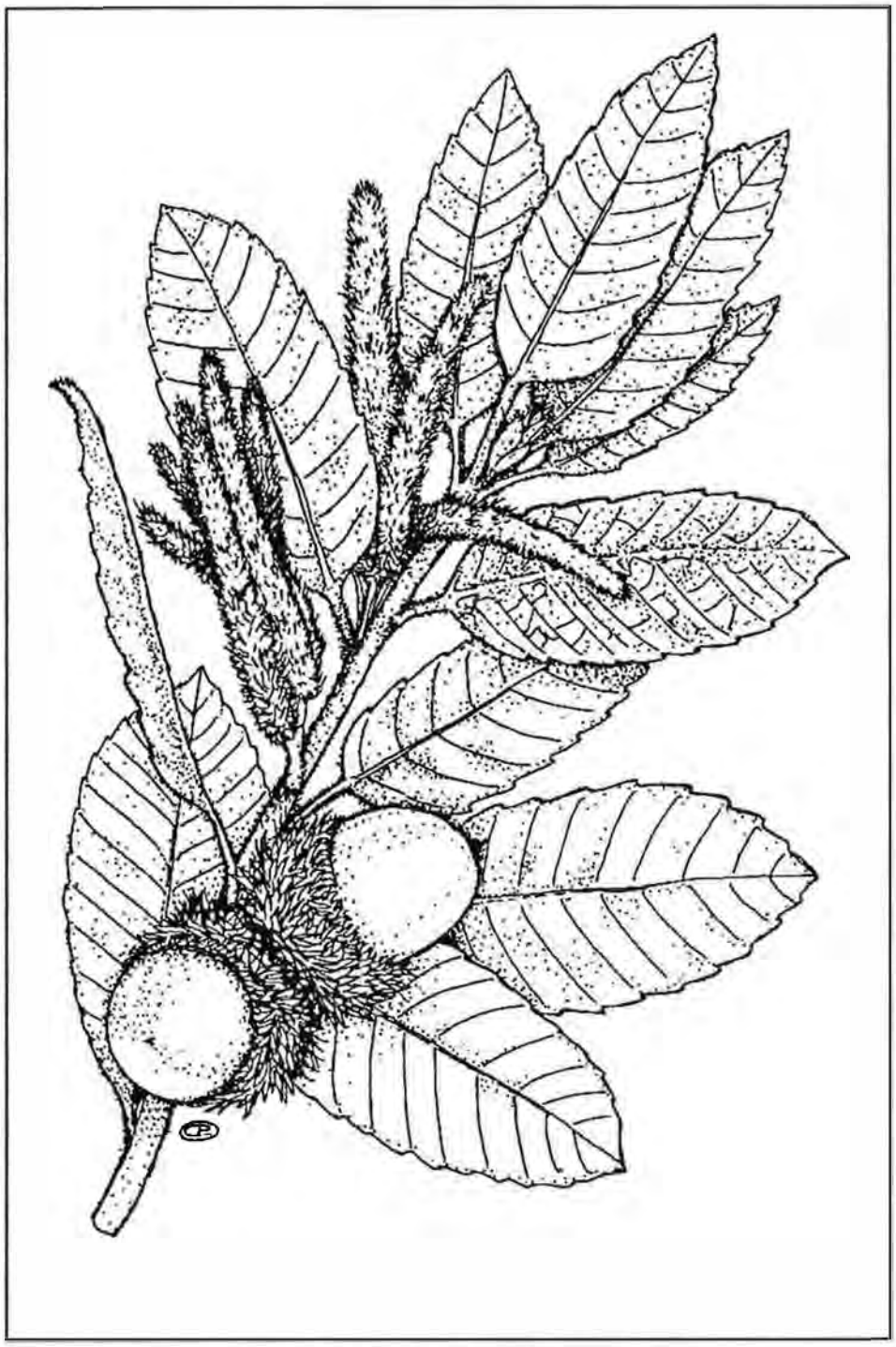
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Pinus jeffreyi | 98% | 84 | 3 | 60 | 57 | 20.9 | 10.9 | 1.2 | 2.3 |
| Pseudotsuga menziesii | 71% | 61 | 1 | 60 | 59 | 13.6 | 13.6 | 1.7 | 3.5 |
| Libocedrus decurrens | 60% | 51 | 1 | 30 | 29 | 9.5 | 7.3 | 1.0 | 2.0 |
| Pinus lambertiana | 44% | 38 | 1 | 35 | 34 | 11.2 | 9.3 | 1.5 | 3.0 |
| Abies concolor | 25% | 22 | 1 | 75 | 74 | 14.2 | 16.9 | 3.6 | 7.5 |
| Pinus monticola | 16% | 14 | 1 | 15 | 14 | 4.5 | 4.2 | 1.1 | 2.4 |
| Pinus attenuata | 14% | 12 | 1 | 20 | 19 | 3.7 | 5.3 | 1.5 | 3.4 |
| Arbutus menziesii | 10% | 9 | 1 | 25 | 24 | 8.3 | 8.4 | 2.8 | 6.4 |
| Umbellularia californica | 9% | 8 | 1 | 70 | 69 | 10.7 | 24.1 | 8.5 | 20.1 |
| Castanopsis chrysophylla | 8% | 7 | 2 | 50 | 48 | 19.3 | 18.3 | 6.9 | 16.9 |
| Lithocarpus densiflorus | 5% | 5 | 5 | 20 | 15 | 13.0 | 5.7 | 2.5 | 7.1 |
| Quercus garryana | 4% | 4 | 3 | 10 | 7 | 5.3 | 3.3 | 1.7 | 5.3 |
| Chamaecyparis lawsoniana | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus contorta | 3% | 3 | 6 | 15 | 9 | 12.0 | 5.2 | 3.0 | 12.9 |
| Quercus chrysolepis | 3% | 3 | 1 | 5 | 4 | 2.3 | 2.3 | 1.3 | 5.7 |
| Abies magnifica shastensis | 1% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Quercus kelloggii | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Pinus jeffreyi | 78% | 67 | 1 | 20 | 19 | 1.6 | 2.3 | .3 | .6 |
| Libocedrus decurrens | 58% | 50 | 1 | 20 | 19 | 2.2 | 3.1 | .4 | .9 |
| Pseudotsuga menziesii | 55% | 47 | 1 | 3 | 2 | 1.3 | .5 | .1 | .2 |
| Abies concolor | 40% | 34 | 1 | 5 | 4 | 1.6 | 1.1 | .2 | .4 |
| Pinus lambertiana | 38% | 33 | 1 | 5 | 4 | 1.5 | 1.1 | .2 | .4 |
| Lithocarpus densiflorus | 11% | 10 | 1 | 20 | 19 | 5.9 | 6.1 | 1.9 | 4.4 |
| Quercus chrysolepis | 10% | 9 | 1 | 4 | 3 | 1.3 | 1.0 | .3 | .8 |
| Umbellularia californica | 10% | 9 | 1 | 20 | 19 | 5.3 | 6.5 | 2.2 | 5.0 |
| Castanopsis chrysophylla | 7% | 6 | 1 | 3 | 2 | 1.8 | 1.0 | .4 | 1.0 |
| Arbutus menziesii | 4% | 4 | 1 | 30 | 29 | 8.8 | 14.2 | 7.1 | 22.6 |
| Pinus monticola | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus contorta | 3% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Quercus garryana | 3% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Pinus attenuata | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Abies magnifica shastensis | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Chamaecyparis lawsoniana | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Taxus brevifolia | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Quercus vaccinifolia | 65% | 56 | 1 | 80 | 79 | 30.7 | 25.9 | 3.5 | 6.9 |
| Arctostaphylos nevadensis | 56% | 48 | 1 | 70 | 69 | 9.8 | 12.4 | 1.8 | 3.6 |
| Ceanothus prostratus | 44% | 38 | 1 | 10 | 9 | 2.8 | 2.2 | .4 | .7 |
| Rhamnus californica | 40% | 34 | 1 | 5 | 4 | 1.4 | .8 | .1 | .3 |
| Arctostaphylos patula | 30% | 26 | 1 | 10 | 9 | 3.3 | 2.5 | .5 | 1.0 |
| Berberis repens | 25% | 22 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Holodiscus discolor | 24% | 21 | 1 | 7 | 6 | 2.1 | 1.4 | .3 | .7 |
| Amelanchier florida | 23% | 20 | 1 | 5 | 4 | 1.6 | 1.1 | .3 | .5 |
| Vaccinium parvifolium | 22% | 19 | 1 | 25 | 24 | 6.7 | 6.1 | 1.4 | 3.0 |
| Garrya buxifolia | 18% | 16 | 1 | 10 | 9 | 2.8 | 3.0 | .8 | 1.6 |
| Amaranthus albus | 17% | 15 | 1 | 3 | 2 | 1.2 | .6 | .1 | .3 |
| Quercus sadleriana | 15% | 13 | 1 | 75 | 74 | 17.0 | 21.6 | 6.0 | 13.0 |
| Arctostaphylos columbiana | 12% | 11 | 1 | 2 | 1 | 1.5 | .5 | .2 | .4 |
| Symphoricarpos mollis | 11% | 10 | 1 | 2 | 1 | 1.1 | .3 | .1 | .2 |
| Rosa gymnocarpa | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos viscida | 9% | 8 | 1 | 40 | 39 | 8.6 | 14.3 | 5.0 | 11.9 |
| Berberis pumila | 9% | 8 | 1 | 2 | 1 | 1.5 | .5 | .2 | .4 |
| Corylus cornuta californica | 9% | 8 | 1 | 3 | 2 | 1.5 | .8 | .3 | .6 |
| Juniperus communis saxatili | 8% | 7 | 1 | 10 | 9 | 3.3 | 3.7 | 1.4 | 3.4 |
| Ceanothus cuneatus | 5% | 5 | 1 | 70 | 69 | 16.4 | 30.1 | 13.4 | 37.3 |
| Rhus diversiloba | 5% | 5 | 1 | 11 | 10 | 3.6 | 4.2 | 1.9 | 5.2 |
| Ceanothus integerrimus | 4% | 4 | 1 | 4 | 3 | 1.8 | 1.5 | .8 | 2.4 |
| Gaultheria ovatifolia | 4% | 4 | 2 | 5 | 3 | 3.8 | 1.5 | .8 | 2.4 |
| Juniperus sp. | 4% | 4 | 1 | 3 | 2 | 2.0 | .8 | .4 | 1.3 |
| Berberis sp. | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hypericum perforatum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Kelloggia galioides | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ligusticum sp. | 1% | 1 | 6 | 6 | 0 | 6.0 | .0 | .0 | .0 |
| Linnaea borealis longiflora | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Lithophragma sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Montia sibirica | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pedicularis racemosa | 1% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Penstemon sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Perideridia gairdneri | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox speciosa occidentalis | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Plantago lanceolata | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polystichum munitum imbricans | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sanicula peckiana | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene californica | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Synthyris reniformis cordata | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium longipes | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Wyethia sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Festuca californica | 38% | 33 | 1 | 75 | 74 | 20.1 | 20.8 | 3.6 | 7.4 |
| Festuca idahoensis | 37% | 32 | 1 | 80 | 79 | 35.5 | 29.3 | 5.2 | 10.6 |
| Carex sp. | 18% | 16 | 1 | 5 | 4 | 2.3 | 1.7 | .4 | .9 |
| Festuca occidentalis | 9% | 8 | 1 | 10 | 9 | 4.3 | 3.4 | 1.2 | 2.8 |
| Elymus glaucus | 7% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Festuca sp. | 7% | 6 | 1 | 2 | 1 | 1.3 | .5 | .2 | .5 |
| Bromus sp. | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calamagrostis koelerioides | 3% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Festuca subulata | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Juncus sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica subulata | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stipa speciosa | 2% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Bromus carinatus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynosurus echinatus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Elymus caput-medusae | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Juncus effusus gracilis | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sitanion jubatum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Lonicera hispidula vacillans | 3% | 3 | 1 | 2 | 1 | 1.7 | .6 | .3 | 1.4 |
| Rosa sp. | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus ursinus | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Berberis nervosa | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus sp. | 2% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Lonicera ciliosa | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rhododendron occidentale | 2% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Rubus parviflorus | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos sp. | 1% | 1 | 20 | 20 | 0 | 20.0 | .0 | .0 | .0 |
| Berberis piperiana | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus pumilus | 1% | 1 | 25 | 25 | 0 | 25.0 | .0 | .0 | .0 |
| Ceanothus velutinus | 1% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Eriodictyon californicum | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Eriogonum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Garrya fremontii | 1% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Heteromeles arbutifolia | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lithocarpus densiflorus ech. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Paxistima myrsinites | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Prunus emarginata | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rhododendron macrophyllum | 1% | 1 | 40 | 40 | 0 | 40.0 | .0 | .0 | .0 |
| Rosa pisocarpa | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vaccinium scoparium | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Xerophyllum tenax | 47% | 40 | 1 | 60 | 59 | 9.8 | 12.7 | 2.0 | 4.1 |
| Iris sp. | 30% | 26 | 1 | 5 | 4 | 1.2 | .8 | .2 | .3 |
| Chimaphila umbellata occide. | 25% | 22 | 1 | 4 | 3 | 1.5 | .9 | .2 | .4 |
| Achillea lanulosa | 21% | 18 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Castilleja sp. | 20% | 17 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium albiflorum | 20% | 17 | 1 | 2 | 1 | 1.1 | .2 | .1 | .1 |
| Aspidotis californica | 18% | 16 | 1 | 3 | 2 | 1.3 | .6 | .1 | .3 |
| Convolvulus sp. | 18% | 16 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Pyrola picta dentata | 18% | 16 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ranunculus sp. | 17% | 15 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Zigadenus sp. | 17% | 15 | 1 | 3 | 2 | 1.2 | .6 | .1 | .3 |
| Aster sp. | 16% | 14 | 1 | 2 | 1 | 1.1 | .4 | .1 | .2 |
| Horkelia sericata | 16% | 14 | 1 | 45 | 44 | 17.9 | 16.6 | 4.4 | 9.6 |
| Viola ocellata | 15% | 13 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Phlox diffusa | 14% | 12 | 1 | 2 | 1 | 1.3 | .5 | .1 | .3 |
| Pteridium aquilinum lanugin. | 12% | 11 | 1 | 5 | 4 | 1.5 | 1.2 | .4 | .8 |
| Pyrola picta | 12% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Schoenolirion album | 12% | 11 | 1 | 8 | 7 | 2.6 | 2.1 | .6 | 1.4 |
| Trientalis latifolia | 12% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brodiaea bridgesii | 11% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium bolanderi | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium sp. | 11% | 10 | 1 | 3 | 2 | 1.9 | 1.0 | .3 | .7 |
| Viola sp. | 11% | 10 | 1 | 3 | 2 | 1.2 | .6 | .2 | .5 |
| Allium sp. | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica discoidea | 10% | 9 | 1 | 2 | 1 | 1.2 | .4 | .1 | .3 |
| Brodiaea sp. | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calochortus tolmiei | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Chimaphila menziesii | 10% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Whipplea modesta | 10% | 9 | 1 | 3 | 2 | 1.2 | .7 | .2 | .5 |
| Goodyera oblongifolia | 9% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus sp. | 8% | 7 | 1 | 4 | 3 | 1.5 | 1.2 | .5 | 1.3 |
| Onychium densum | 8% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polygala cornuta | 8% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polystichum munitum | 8% | 7 | 1 | 3 | 2 | 1.4 | .8 | .3 | .7 |
| Silene hookeri | 8% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sanicula sp. | 7% | 6 | 1 | 3 | 2 | 1.8 | 1.0 | .4 | 1.0 |
| Sidalcea malvaeflora | 7% | 6 | 1 | 5 | 4 | 1.7 | 1.6 | .7 | 1.7 |
| Sisyrinchium bellum | 7% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia sp. | 7% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica arguta | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Campanula prenanthoides | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Disporum hookeri | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Epilobium sp. | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox sp. | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pyrola picta aphylla | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sedum sp. | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina racemosa amplex. | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trifolium repens | 5% | 5 | 1 | 2 | 1 | 1.6 | .5 | .2 | .7 |
| Veratrum californicum | 5% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apocynum pumilum | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collinsia sp. | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erigeron foliosus | 4% | 4 | 1 | 3 | 2 | 1.5 | 1.0 | .5 | 1.6 |
| Galium bolanderi | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Helenium bigelovii | 4% | 4 | 1 | 2 | 1 | 1.5 | .6 | .3 | .9 |
| Lomatium sp. | 4% | 4 | 1 | 5 | 4 | 2.0 | 2.0 | 1.0 | 3.2 |
| Lotus crassifolius | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polygala californica | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pterospora andromedea | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola lobata | 4% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erythronium sp. | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium washingtonianum purp. | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus sellulus ursinus | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Monardella odoratissima | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Silene campanulata | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola glabella | 3% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achlys triphylla | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone deltoidea | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone quinquefolia minor | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cirsium sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dodecatheon sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium ambiguum | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Gentiana sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Madia madioides | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Madia sp. | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox adsurgens | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stellaria jamesiana | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vancouveria hexandra | 2% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lobularia maritima | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erysimum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Erythronium grandiflorum pall. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia heterophylla | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrrum californicum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium californicum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arenaria nuttalli | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica breweri | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Angelica sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Antennaria suffrutescens | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arnica sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aster ledophyllus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Astragalus deanei | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Boschniakia strobilacea | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brodiaea congesta | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calochortus sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calypso bulbosa | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia heterophylla | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus polymorphus | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza maculata | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza striata | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Crepis pleurocarpa | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynoglossum grande | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dentaria californica | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriogonum sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eriophyllum lanatum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Frasera albicaulis | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Frasera albicaulis nitida | 1% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Fritillaria sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Habenaria sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium greenei | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium horridum | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hieracium sp. | 1% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

# TANOAK SERIES



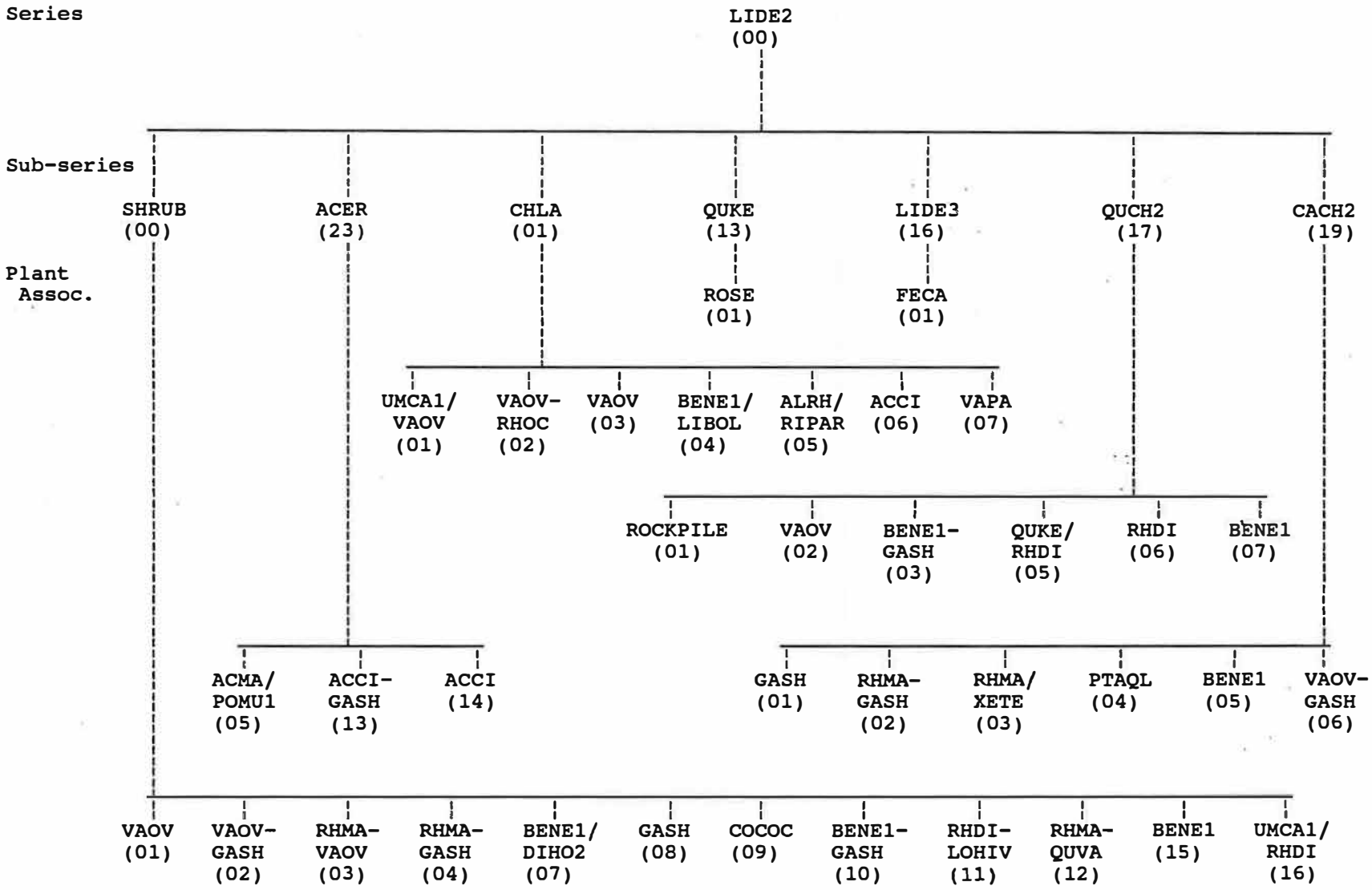



Figure 1. Dendrogram of plant associations within the tanoak series.

Table 1. Confirmed locations of plant associations in the tanoak-shrub sub-series by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2-BENE1/ DIHO2 | LIDE2/ GASH |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | X | | X |
| ORLEANS RD | | | | X | | X |
| LOWER TRINITY RD | | | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | | X | | |
| HAPPY CAMP RD | X | | | | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RD | | | | | | |

Table 2. Comparison of environment and soil variables by plant association in the tanoak-shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-VAOV | LIDE2/VAOV-GASH | LIDE2/RHMA-VAOV | LIDE2/RHMA-GASH | LIDE2-BENE1/DIHO2 | LIDE2/GASH |
| NUMBER OF PLOTS | 30 | 25 | 10 | 13 | 2 | 17 |
| **ENVIRONMENT:** ELEVATION (ft) | 1657 | 1633 | 1371 | 2720 | 2755 | 2320 |
| ASPECT (deg) | N. WEST S. EAST | S. EAST N. WEST | N. WEST | N. EAST | EAST | N. WEST |
| SLOPE (%) | 38 | 47 | 54 | 58 | 43 | 62 |
| RADIATION INDEX | .459 | .444 | .348 | .405 | .495 | .367 |
| SURFACE ROCK(%) | 4 | 4 | 2 | 11 | < 1 | 6 |
| **SOILS:** SOIL DEPTH (in) | 37 | 34 | 35 | 39 | 40 | 34 |
| AWC (in) | 4.2 | 3.6 | 3.3 | 4.0 | 6.1 | 2.9 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 7 | 5 | 7 | 5 | 9 | 6 |
| CO. FRAG. (%) | 36 | 46 | 52 | 38 | 15 | 47 |
| COLOR | dark brown, dark yellowish brown, dark reddish brown | dark brown, dark yellowish brown, black | dark brown, dark yellowish brown | dark brown | dark brown | dark brown, very dark grayish brown, dark yellowish brown |
| TEXTURE | gl, vgl, xgl | gl, xgl, vgl | xgl, gl | gl, vgl, xgl | cl, sil | vgl, xgl, vgsl, xgsl |
| PARENT MATERIAL | phyllite mafic greenstone | phyllite mafic schist | phyllite greenstone | schist phyllite | mafic semischist | phyllite schist sandstone |
| SOIL FAMILY | Goldridge Hugo Clallam | Clallam Goldridge Hugo | Clallam Goldridge | Kindig Hugo | Hugo | Clallam Hugo |

Table 3. Comparison of stand structure variables by plant association in the tanoak-shrub sub-series, for stands ≥ 200 years old.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2-BENE1/ DIHO2 | LIDE2/ GASH |
| STAND AGE | 340 | 304 | 381 | 329 | 447 | 305 |
| NUMBER OF PLOTS | 23 | 20 | 7 | 11 | 2 | 12 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 6821 | 8372 | 6371 | 11744 | 8177 | 11416 |
| BASAL AREA ($ft^2$) | 168 | 216 | 162 | 301 | 186 | 279 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 1751 | 1469 | 1347 | 590 | 1403 | 547 |
| BASAL AREA ($ft^2$) | 109 | 83 | 82 | 37 | 80 | 42 |
| SITE CLASS | 1A-2 | 1A-1 | 1-2 | 1A-1 | 1A-1 | 1A-1 |
| SITE INDEX | 150-200 | 175-200 | 150-175 | 175-200 | 175-200 | 175-200 |
| STAND DENSITY INDEX | 459 | 456 | 377 | 474 | 380 | 474 |

Table 4. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2/ BENE1/ DIHO2 | LIDE2/ GASH |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 95 | 95 | 98 | 98 | 97 | 98 |
| GRASS COVER | <1 | <1 | <1 | <1 | <1 | <1 |
| FORB COVER | 2 | 4 | 3 | 5 | 9 | 6 |
| SHRUB COVER | 55 | 57 | 75 | 68 | 13 | 68 |
| TREE COVER | 88 | 93 | 91 | 84 | 91 | 91 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 40 (100) | 51 (92) | 48 (100) | 60 (100) | 40 (100) | 55 (100) |
| TANOAK | 61 (100) | 42 (96) | 52 (100) | 28 (92) | 48 (100) | 43 (100) |
| PACIFIC MADRONE | 9 (76) | 9 (52) | 5 (70) | 3 (38) | 10 (50) | 4 (88) |
| CHINQUAPIN | 6 (16) | 7 (16) | 4 (60) | 4 (15) | 4 (100) | 5 (29) |
| CANYON LIVE OAK | 1 (3) | | 2 (30) | 4 (23) | | 2 (17) |
| SUGAR PINE | 13 (20) | 14 (16) | 10 (30) | 4 (15) | | 12 (17) |
| PACIFIC DOGWOOD | 3 (40) | 8 (36) | 5 (30) | 6 (53) | 2 (50) | 2 (11) |
| BIGLEAF MAPLE | 7 (14) | 3 (20) | 2 (10) | 7 (53) | 1 (50) | 4 (11) |
| BLACK OAK | | | | | | |
| PACIFIC YEW | 1 (3) | 4 (12) | 2 (10) | 9 (15) | 10 (50) | 2 (5) |
| INCENSE CEDAR | 10 (6) | 12 (12) | | | | |
| CALIFORNIA BAY | 12 (13) | 10 (24) | | | | |
| PORT-ORFORD CEDAR | 2 (3) | 4 (7) | 1 (10) | 5 (7) | | 5 (5) |
| WHITE FIR | | | | 1 (7) | 6 (100) | |
| KNOBCONE PINE | | | | | | |
| ALDER | 3 (6) | 3 (7) | 3 (10) | | | |
| PONDEROSA PINE | | | | | | |
| JEFFREY PINE | | 3 (4) | | | | |

Table 4. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2/ BENE1/ DIHO2 | LIDE2/ GASH |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 10 (100) | 12 (100) | 9 (100) | 13 (100) | 15 (100) | 27 (94) |
| DOUGLAS-FIR | 2 (73) | 1 (68) | 1 (60) | 1 (69) | 3 (50) | 3 (70) |
| CANYON LIVE OAK | 1 (10) | 1 (16) | 1 (30) | 2 (46) | | 1 (41) |
| SUGAR PINE | 1 (26) | 1 (24) | 1 (10) | 1 (7) | | 1 (5) |
| CHINQUAPIN | 2 (13) | 6 (7) | 2 (60) | 3 (15) | 1 (50) | 2 (11) |
| PACIFIC DOGWOOD | 2 (16) | 2 (36) | 2 (30) | 3 (23) | | 1 (5) |
| PACIFIC YEW | | 2 (24) | 1 (30) | 1 (15) | | 1 (11) |
| CALIFORNIA BAY | 2 (16) | 4 (40) | 2 (10) | 1 (7) | | 3 (5) |
| PACIFIC MADRONE | 1 (26) | 1 (7) | 1 (20) | | | |
| INCENSE CEDAR | 3 (10) | 1 (20) | | | | |
| WHITE FIR | 1 (3) | | | 1 (7) | 3 (100) | 1 (5) |
| BLACK OAK | | | | | | |
| BIGLEAF MAPLE | 1 (3) | 2 (12) | | 1 (7) | | |
| PORT-ORFORD CEDAR | | 1 (12) | 1 (10) | | | 1 (5) |
| ALDER | | 1 (7) | | | | |
| CASCARA | | 1 (4) | 2 (20) | | | |
| PONDEROSA PINE | | | | | | |

Table 4. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2/ BENE1/ DIHO2 | LIDE2/ GASH |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| DWARF OREGON-GRAPE | 3 (36) | 2 (64) | 1 (30) | 9 (92) | 12 (100) | 4 (70) |
| POISON OAK | 1 (56) | 2 (60) | 9 (40) | 5 (7) | 1 (50) | 2 (58) |
| SALAL | 3 (63) | 22 (100) | 14 (100) | 38 (100) | | 62 (100) |
| TRAILING BLACKBERRY | 1 (26) | 1 (40) | 1 (10) | 1 (30) | | 1 (47) |
| HAIRY HONEYSUCKLE | 1 (30) | 1 (40) | 2 (20) | 1 (7) | | 1 (17) |
| WILD ROSE | 1 (26) | 1 (40) | 1 (30) | 2 (61) | 1 (100) | 1 (57) |
| HAZELNUT | 4 (13) | 3 (56) | 35 (10) | 3 (23) | | 1 (5) |
| CREEPING SNOWBERRY | 1 (3) | | | | | |
| EVERGREEN HUCKLEBERRY | 52 (100) | 36 (100) | 52 (100) | 38 (23) | | 6 (64) |
| RED HUCKLEBERRY | 2 (6) | 1 (16) | 1 (20) | 4 (38) | 1 (50) | 1 (11) |
| RHODODENDRON | 2 (13) | 4 (20) | 18 (100) | 23 (84) | | 3 (17) |
| VINE MAPLE | 1 (3) | 1 (4) | | 3 (7) | 1 (50) | |
| OCEANSPRAY | | | | | | |
| HUCKLEBERRY OAK | | | | | | |
| OREGON BOXWOOD | | | | 1 (15) | | |
| SADLER OAK | | | | | | 1 (5) |
| THIMBLEBERRY | | 1 (12) | 2 (10) | 2 (7) | | 1 (5) |
| STREAMSIDE SNOWBERRY | | | | | | 1 (5) |
| DEERBRUSH | | 15 (4) | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| BLACK CAP | | 2 (20) | | | 1 (50) | |
| TALL OREGON-GRAPE | | 1 (4) | | | | |
| PYGMY HOLLY-GRAPE | | | | | | 2 (5) |
| SERVICEBERRY | | | | | | |
| CREEPING OREGON-GRAPE | | | | | | |
| SLENDER SALAL | | | | | | |
| WHITELEAF MANZANITA | | | | | | |
| PINEMAT MANZANITA | | | | | | 1 (5) |
| GREENLEAF MANZANITA | | 2 (4) | | | | |
| SNOWBRUSH | | 8 (7) | | | | |
| COFFEEBERRY | | | 1 (10) | | | |
| WESTERN AZALEA | | 3 (12) | | | | |
| GOOSEBERRY | 1 (3) | | | | | |
| HOARY MANZANITA | | | | | | |
| DWARF TANBARK | | | | | | |

Table 4. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2/ VAOV | LIDE2/ VAOV-GASH | LIDE2/ RHMA-VAOV | LIDE2/ RHMA-GASH | LIDE2/ BENE1/ DIHO2 | LIDE2/ GASH |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| BRACKENFERN | 1 (70) | 1 (52) | 1 (40) | 2 (46) | 1 (50) | 1 (58) |
| LITTLE PRINCE'S PINE | 1 (43) | 1 (24) | 1 (10) | 1 (38) | | 1 (58) |
| SWORDFERN | 2 (50) | 6 (76) | 5 (100) | 7 (84) | 1 (50) | 3 (76) |
| RATTLESNAKE PLANTAIN | 1 (43) | 1 (28) | 1 (40) | 1 (53) | 1 (50) | 1 (70) |
| WESTERN MODESTY | 1 (43) | 3 (44) | 1 (20) | 2 (38) | 3 (100) | 1 (41) |
| PRINCE'S PINE | 2 (13) | 2 (24) | | 2 (46) | 4 (50) | 2 (41) |
| VANILLA LEAF | 1 (13) | 1 (28) | | 5 (69) | 2 (100) | 1 (58) |
| WHITE-VEINED WINTERGREEN | 1 (26) | 1 (16) | | 1 (7) | | 1 (23) |
| HOOKER'S FAIRYBELL | 1 (16) | 1 (28) | 1 (10) | 1 (23) | 1 (50) | 1 (35) |
| STARFLOWER | 1 (10) | 1 (24) | 1 (10) | 1 (15) | | 1 (11) |
| WHITE INSIDE-OUT FLOWER | 1 (13) | 2 (4) | | 3 (7) | | 1 (5) |
| IRIS | 1 (10) | 1 (12) | | | 1 (50) | 1 (17) |
| BEARGRASS | 1 (16) | 2 (20) | 2 (20) | 1 (30) | | 7 (17) |
| RAYLESS ARNICA | 1 (3) | | | | 1 (50) | |
| REDWOOD VIOLET | 1 (10) | 1 (24) | 1 (30) | 1 (69) | | 1 (35) |
| HAWKWEED | | 1 (7) | | 1 (7) | | |
| TWINFLOWER | 1 (6) | 3 (20) | 2 (10) | 4 (23) | 2 (50) | 1 (5) |
| TRAILPLANT | 1 (3) | 7 (16) | 1 (10) | 1 (15) | | 1 (11) |
| SMALL INSIDE-OUT FLOWER | 1 (23) | 2 (36) | 1 (30) | 2 (15) | | 1 (5) |
| MOUNTAIN DOGBANE | 1 (3) | | | | | 1 (7) |
| FALSE SOLOMON'S SEAL | 1 (6) | 1 (4) | 1 (10) | 1 (7) | | |
| WHITE TRILLIUM | 1 (6) | 1 (16) | 1 (10) | 1 (23) | | 1 (11) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | | 1 (4) | | | | |
| CALIFORNIA HAREBELL | | 1 (4) | | | | |
| STREAM VIOLET | 1 (10) | 1 (4) | | | | |
| GROUND CONE | 1 (3) | 1 (7) | | | | 1 (11) |
| SLENDER-TUBED IRIS | | | | 1 (7) | | 2 (5) |
| SPOTTED CORALROOT | 1 (3) | | | 1 (7) | | |
| LEAFLESS WINTERGREEN | 1 (6) | 1 (4) | | | | |
| REDWOOD SORREL | 1 (6) | 3 (24) | 7 (30) | | | 4 (11) |
| DOGBANE | | | | | | |
| STRIPED CORALROOT | | 1 (4) | | 1 (7) | | |
| CALIFORNIA TOOTHWORT | | 1 (4) | | | | 1 (17) |
| OREGON TRILLIUM | 1 (3) | 1 (12) | 1 (10) | 1 (7) | | 1 (11) |
| PINE VIOLET | | | | | | |
| CORALROOT | | 1 (4) | 1 (10) | 1 (15) | | |
| TOOTHED WINTERGREEN | | | | 1 (7) | | 1 (5) |
| CANDYSTICK | 1 (3) | 1 (4) | | | | |
| BEDSTRAW | | | | 1 (7) | | |
| LILY | | | | | | 1 (5) |
| FAIRY SLIPPER | 1 (3) | | | | | 1 (5) |
| LICORICE FERN | 1 (3) | 1 (10) | 1 (10) | | | 1 (5) |
| IMBRICATE SWORDFERN | | | | | | |
| SOLOMON'S SEAL | | | | 1 (7) | | |
| SPREADING DOGBANE | | | | | | |
| OBSCURE BEDSTRAW | | | | | | |
| KELLOGIA | | 1 (4) | | | | |
| WOODLAND PHLOX | | | | | | |
| WESTERN SOLOMON'S SEAL | | | | 1 (7) | | |
| SCOULER'S HAREBELL | | | | 1 (7) | | 1 (11) |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | | | | | | |
| FAIRYBELL | | | | | | |
| PHANTOM ORCHID | 1 (3) | | | | | 1 (5) |
| ELEGANT BOG ORCHID | | | | | | |
| ALASKA BOG ORCHID | | | | | | |
| GNOME PLANT | 1 (3) | | | | | |
| PEAVINE | 1 (3) | 1 (4) | | | | 1 (5) |
| WASHINGTON LILY | | | | | | |
| WOODLAND TARWEED | | | | | | |
| PINE-FOOT | 1 (3) | 1 (7) | | | | |
| CALIFORNIA LICORICE FERN | 1 (3) | 1 (4) | | | | |
| PINEDROPS | | 1 (4) | | | | |
| AMERICAN VETCH | | 1 (7) | | | | |
| VETCH | | | | | | 1 (5) |
| ARNICA | | 1 (4) | | | | |
| MARBLED WILD GINGER | | | | | | |
| WESTERN CORALROOT | | | | | | |
| PACIFIC HOUND'S-TONGUE | | | | | | |
| CATCHWEED BEDSTRAW | 1 (3) | 1 (7) | | 1 (7) | | |
| LUPINE | | | | | | |
| VIOLET | 1 (3) | 1 (7) | | | 1 (50) | |
| WESTERN FESCUE | | | | 1 (7) | 1 (50) | 1 (11) |
| CALIFORNIA FESCUE | | | | | | |
| FESCUE | | 1 (4) | | 1 (7) | | 1 (5) |
| BROME | | | | | | |
| IDAHO FESCUE | | 1 (4) | | | | |
| CALIFORNIA SWEETGRASS | 1 (3) | 2 (20) | 1 (10) | | | |

Table 5. Confirmed locations of plant associations in the tanoak-shrub sub-series by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | LIDE2/ COCOC | LIDE2/ BENE1- GASH | LIDE2/ RHDI- LOHIV | LIDE2/ RHMA- QUVA | LIDE2/ BENE1 | LIDE2- UMCA1/ RHDI |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | X | | X | X | |
| ORLEANS RD | X | X | X | X | X | |
| LOWER TRINITY RD | X | X | | | X | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | | X | X |
| HAPPY CAMP RD | | | X | | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | X | |
| SCOTT RIVER RD | | | | | | |

Table 6. Comparison of environment and soil variables by plant association in the tanoak-shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ COCOC | LIDE2/ BENE1- GASH | LIDE2/ RHDI- LOHIV | LIDE2/ RHMA- QUVA | LIDE2/ BENE1 | LIDE2- UMCA1/ RHDI |
| NUMBER OF PLOTS | 7 | 20 | 17 | 6 | 45 | 4 |
| ENVIRONMENT: ELEVATION (ft) | 1829 | 2660 | 1971 | 2662 | 2808 | 1618 |
| ASPECT (deg) | WEST S. WEST | N. WEST N. EAST | EAST N. WEST | N. EAST | N. WEST N. EAST | S. EAST |
| SLOPE (%) | 44 | 53 | 47 | 45 | 48 | 56 |
| RADIATION INDEX | .385 | .400 | .394 | .401 | .390 | .495 |
| SURFACE ROCK(%) | 3 | 10 | 8 | 3 | 6 | 2 |
| SOILS: SOIL DEPTH (in) | > 40 | 34 | 37 | 29 | 35 | 38 |
| AWC (in) | 3.7 | 3.6 | 4.3 | 2.1 | 4.1 | 4.5 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 7 | 5 | 10 | 6 | 7 | 5 |
| CO. FRAG. (%) | 38 | 34 | 29 | 38 | 36 | 38 |
| COLOR | dark brown, dark yellowish brown | dark brown, dark yellowish brown, very dark grayish brown | dark yellowish brown, dark brown, yellowish red | dark brown | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | very dark grayish brown |
| TEXTURE | gl, xgl | gl, vgl, l | sl, gl, vgl, l | vgl | gl, l, vgcl, vgl | gl, vgl |
| PARENT MATERIAL | phyllite | phyllite schist sandstone | granite greenstone phyllite gneiss | serpentine | phyllite schist mafic greenstone | serpentine |
| SOIL FAMILY | Goldridge | Bentpeak Clallam Goldridge Hugo | Gilligae Hugo Goldridge Clallam | Weitchpec | Clallam Goldridge Bentpeak Holland | Holland Hugo |

Table 7. Comparison of stand structure variables by plant association in the tanoak-shrub sub-series, for stands ≥ 200 years old.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ COCOC | LIDE2/ BENE1-GASH | LIDE2/ RHDI-LOHIV | LIDE2/ RHMA-QUVA | LIDE2/ BENE1 | LIDE2/ UMCA1/ RHDI |
| STAND AGE | 364 | 322 | 301 | 330 | 338 | 208 |
| NUMBER OF PLOTS | 4 | 14 | 14 | 5 | 37 | 2 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 4123 | 8747 | 7286 | 6703 | 8602 | 9123 |
| BASAL AREA ($ft^2$) | 98 | 217 | 170 | 215 | 209 | 240 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 3284 | 1566 | 1852 | 89 | 1195 | 1024 |
| BASAL AREA ($ft^2$) | 132 | 80 | 101 | 13 | 79 | 40 |
| SITE CLASS | 1-2 | 1A-2 | 1A-1 | 3-4 | 1A-2 | 1A |
| SITE INDEX | 150-175 | 150-200 | 175-200 | 100-125 | 150-200 | 200 |
| STAND DENSITY INDEX | 381 | 431 | 420 | 350 | 444 | 414 |

Table 8. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ COCOC | LIDE2/ BENE1- GASH | LIDE2/ RHDI- LOHIV | LIDE2/ RHMA- QUVA | LIDE2/ BENE1 | LIDE2- UMCA1/ RHDI |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 90 | 97 | 91 | 98 | 93 | 90 |
| GRASS COVER | <1 | <1 | <1 | <1 | <1 | <1 |
| FORB COVER | 8 | 5 | 6 | 8 | 10 | 3 |
| SHRUB COVER | 17 | 37 | 15 | 73 | 13 | 5 |
| TREE COVER | 83 | 91 | 83 | 74 | 90 | 89 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 38 (100) | 54 (100) | 37 (100) | 32 (100) | 46 (100) | 46 (100) |
| TANOAK | 45 (100) | 41 (90) | 44 (100) | 14 (83) | 40 (100) | 32 (100) |
| PACIFIC MADRONE | 9 (100) | 8 (65) | 5 (76) | 3 (66) | 9 (46) | 23 (75) |
| CHINQUAPIN | 40 (14) | 11 (50) | 11 (23) | 5 (33) | | |
| CANYON LIVE OAK | 3 (28) | | 5 (5) | 3 (33) | 3 (8) | 5 (25) |
| SUGAR PINE | 3 (28) | 2 (14) | 20 (23) | 5 (83) | 9 (22) | |
| PACIFIC DOGWOOD | 4 (42) | 4 (25) | 3 (35) | | 5 (28) | 1 (25) |
| BIGLEAF MAPLE | | | 2 (17) | | 4 (4) | 7 (50) |
| BLACK OAK | | | 4 (29) | | 4 (11) | 3 (75) |
| PACIFIC YEW | | | 3 (5) | 13 (33) | 7 (4) | |
| INCENSE CEDAR | | 20 (5) | 2 (5) | 4 (50) | | |
| CALIFORNIA BAY | | | | 5 (16) | 2 (4) | 25 (100) |
| PORT-ORFORD CEDAR | | 2 (5) | | | 7 (4) | |
| WHITE FIR | | 1 (10) | | 2 (16) | 2 (3) | |
| KNOBCONE PINE | | | | | 2 (25) | |
| ALDER | | | | | | |
| PONDEROSA PINE | | | 10 (5) | | | |
| JEFFREY PINE | | | | | | 15 (25) |

Table 8. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ COCOC | LIDE2/ BENE1-GASH | LIDE2/ RHDI-LOHIV | LIDE2/ RHMA-QUVA | LIDE2/ BENE1 | LIDE2-UMCA1/ RHDI |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 38 (100) | 25 (100) | 23 (100) | 19 (83) | 25 (97) | 12 (100) |
| DOUGLAS-FIR | 2 (85) | 2 (50) | 2 (58) | 3 (83) | 2 (62) | 2 (50) |
| CANYON LIVE OAK | 2 (28) | 3 (14) | 2 (47) | 2 (66) | 4 (28) | 1 (50) |
| SUGAR PINE | 1 (28) | 1 (20) | 1 (47) | 1 (33) | 1 (22) | 1 (50) |
| CHINQUAPIN | | 4 (50) | 1 (11) | 1 (33) | 6 (17) | |
| PACIFIC DOGWOOD | 3 (42) | 6 (14) | 2 (23) | | 2 (26) | 1 (25) |
| PACIFIC YEW | | | | 1 (33) | 1 (17) | |
| CALIFORNIA BAY | 1 (14) | | 2 (5) | 4 (33) | 2 (2) | 8 (100) |
| PACIFIC MADRONE | | 1 (5) | | | 1 (2) | |
| INCENSE CEDAR | | 1 (5) | | 1 (50) | 1 (4) | 1 (25) |
| WHITE FIR | | 1 (10) | | | 3 (4) | 1 (25) |
| BLACK OAK | | | 1 (11) | | 1 (11) | |
| BIGLEAF MAPLE | | | | | 1 (2) | |
| PORT-ORFORD CEDAR | | 1 (5) | | 2 (16) | | |
| ALDER | | | | 1 (16) | | |
| CASCARA | 1 (14) | | | | | |
| PONDEROSA PINE | | | 1 (5) | | | |

Table 8. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2/ COCOC | LIDE2/ BENE1-GASH | LIDE2/ RHDI-LOHIV | LIDE2/ RHMA-QUVA | LIDE2/ BENE1 | LIDE2-UMCA1/ RHDI |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| DWARF OREGON-GRAPE | 1 (14) | 15 (95) | 1 (11) | 8 (83) | 10 (100) | 1 (25) |
| POISON OAK | 4 (42) | 2 (10) | 3 (94) | 1 (16) | 2 (35) | 5 (75) |
| SALAL | | 19 (100) | | 17 (83) | | |
| TRAILING BLACKBERRY | 1 (14) | 1 (40) | 1 (5) | 1 (83) | 1 (24) | |
| HAIRY HONEYSUCKLE | 2 (57) | | 2 (76) | 1 (33) | 1 (20) | 1 (75) |
| WILD ROSE | 1 (56) | 1 (64) | 1 (75) | 3 (83) | 1 (22) | 1 (50) |
| HAZELNUT | 3 (100) | 2 (25) | 1 (23) | 1 (16) | 2 (24) | 1 (50) |
| CREEPING SNOWBERRY | 2 (42) | 1 (14) | 2 (47) | | 1 (31) | 1 (25) |
| EVERGREEN HUCKLEBERRY | | 1 (10) | | 22 (33) | 1 (2) | |
| RED HUCKLEBERRY | | 1 (20) | | 9 (83) | 6 (11) | |
| RHODODENDRON | | 1 (20) | | 23 (100) | 5 (4) | |
| VINE MAPLE | | 8 (5) | | 8 (33) | 3 (6) | |
| OCEANSPRAY | 2 (28) | 1 (25) | 1 (5) | 2 (16) | 2 (8) | |
| HUCKLEBERRY OAK | | 1 (5) | | 9 (100) | 4 (4) | |
| OREGON BOXWOOD | | 1 (14) | | | 2 (2) | |
| SADLER OAK | | 1 (5) | | | 1 (2) | |
| THIMBLEBERRY | | 1 (5) | 1 (5) | 1 (16) | 2 (4) | |
| STREAMSIDE SNOWBERRY | 4 (14) | | 2 (11) | | 1 (2) | 1 (25) |
| DEERBRUSH | | | 1 (5) | | 2 (2) | |
| BLACK CAP | | | | | 1 (2) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| TALL OREGON-GRAPE | 2 (14) | | 1 (17) | | | |
| PYGMY HOLLY-GRAPE | | | | | | |
| SERVICEBERRY | 2 (14) | 1 (5) | | 1 (16) | | |
| CREEPING OREGON-GRAPE | | | | | 1 (2) | |
| SLENDER SALAL | | | | | 2 (2) | |
| WHITELEAF MANZANITA | | | | 50 (33) | | |
| PINEMAT MANZANITA | | | | | | |
| GREENLEAF MANZANITA | | | | 20 (16) | | |
| SNOWBRUSH | | | | | | |
| COFFEEBERRY | | | | 7 (50) | | |
| WESTERN AZALEA | | | | | | |
| GOOSEBERRY | | 1 (5) | | | | |
| HOARY MANZANITA | | | | 1 (33) | | |
| DWARF TANBARK | | | | 13 (33) | | |

Table 8. Comparison of vegetation variables by plant association in the tanoak-shrub sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2/ COCOC | LIDE2/ BENE1-GASH | LIDE2/ RHDI-LOHIV | LIDE2/ RHMA-QUVA | LIDE2/ BENE1 | LIDE2-UMCA1/ RHDI |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| BRACKENFERN | 2 (57) | 1 (60) | 1 (35) | 1 (33) | 1 (57) | 1 (50) |
| LITTLE PRINCE'S PINE | 1 (71) | 1 (55) | 1 (47) | | 1 (57) | 1 (75) |
| SWORDFERN | 1 (57) | 2 (60) | 3 (35) | 2 (83) | 3 (48) | 1 (50) |
| RATTLESNAKE PLANTAIN | 1 (42) | 1 (40) | 1 (47) | 1 (50) | 1 (44) | 1 (25) |
| WESTERN MODESTY | 12 (42) | 1 (40) | 6 (23) | 2 (100) | 3 (62) | |
| PRINCE'S PINE | 1 (14) | 2 (55) | 1 (17) | 1 (50) | 2 (46) | 3 (25) |
| VANILLA LEAF | 2 (71) | 1 (40) | 1 (35) | 1 (33) | 4 (51) | |
| WHITE-VEINED WINTERGREEN | 1 (42) | 1 (30) | 1 (17) | 1 (16) | 1 (44) | |
| HOOKER'S FAIRYBELL | 1 (71) | 1 (35) | 1 (35) | | 1 (42) | 1 (50) |
| STARFLOWER | 1 (28) | 1 (14) | 1 (17) | 1 (50) | 1 (37) | 1 (75) |
| WHITE INSIDE-OUT FLOWER | 2 (28) | 1 (50) | 3 (58) | | 3 (31) | 1 (25) |
| IRIS | | 1 (14) | 1 (41) | 1 (66) | 1 (11) | 1 (25) |
| BEARGRASS | | 1 (20) | | 2 (83) | 1 (15) | |
| RAYLESS ARNICA | | 1 (5) | 1 (58) | | 1 (20) | 1 (25) |
| REDWOOD VIOLET | 2 (14) | 2 (20) | | 1 (16) | 1 (13) | |
| HAWKWEED | | 1 (10) | 2 (5) | | 1 (11) | |
| TWINFLOWER | | 8 (14) | | 8 (66) | 7 (17) | |
| TRAILPLANT | 1 (42) | 1 (5) | 1 (11) | | 1 (6) | |
| SMALL INSIDE-OUT FLOWER | | 2 (5) | | 2 (50) | 1 (11) | |
| MOUNTAIN DOGBANE | 1 (14) | 1 (5) | 2 (5) | | 1 (2) | |
| FALSE SOLOMON'S SEAL | | 1 (10) | | 1 (16) | 1 (13) | 1 (25) |
| WHITE TRILLIUM | | 1 (5) | | 1 (16) | 1 (8) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | 3 (14) | 1 (10) | 1 (11) | | 1 (4) | 1 (25) |
| CALIFORNIA HAREBELL | 1 (28) | 1 (5) | 1 (17) | 1 (16) | 2 (4) | |
| STREAM VIOLET | | | 1 (5) | 1 (16) | 1 (2) | 1 (25) |
| GROUND CONE | 1 (14) | | | | 1 (4) | |
| SLENDER-TUBED IRIS | 1 (28) | | | | 1 (4) | |
| SPOTTED CORALROOT | | 1 (10) | | | 1 (6) | |
| LEAFLESS WINTERGREEN | | 1 (5) | 1 (5) | | 1 (6) | |
| REDWOOD SORREL | | 1 (5) | | 2 (33) | 1 (8) | |
| DOGBANE | | 1 (5) | | | 1 (11) | |
| STRIPED CORALROOT | | 1 (5) | | | 1 (6) | |
| CALIFORNIA TOOTHWORT | 1 (57) | | | | 1 (2) | |
| OREGON TRILLIUM | | 1 (5) | | | 1 (2) | |
| PINE VIOLET | | | 1 (5) | | | |
| CORALROOT | 1 (14) | | | 1 (14) | | |
| TOOTHED WINTERGREEN | | 1 (10) | | 1 (16) | 1 (2) | |
| CANDYSTICK | | 1 (5) | 1 (5) | | 1 (6) | |
| BEDSTRAW | | | | 1 (16) | 1 (2) | |
| LILY | | | | 1 (16) | 1 (2) | |
| FAIRY SLIPPER | | 1 (5) | | | 1 (4) | |
| LICORICE FERN | | | 1 (5) | | | |
| IMBRICATE SWORDFERN | 2 (14) | | | | | |
| SOLOMON'S SEAL | | | | | | |
| SPREADING DOGBANE | | | | | 1 (2) | |
| OBSCURE BEDSTRAW | | | | | | |
| KELLOGIA | 1 (14) | | 1 (5) | | | |
| WOODLAND PHLOX | | | | | 2 (4) | |
| WESTERN SOLOMON'S SEAL | | | | | 1 (2) | |
| SCOULER'S HAREBELL | | 1 (5) | | | 1 (2) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | | | | | | |
| FAIRYBELL | | | | 1 (33) | | |
| PHANTOM ORCHID | | 1 (5) | | | 1 (2) | |
| ELEGANT BOG ORCHID | 1 (28) | | | | | |
| ALASKA BOG ORCHID | | | | | 1 (4) | |
| GNOME PLANT | | | | | | |
| PEAVINE | | | | 1 (16) | | |
| WASHINGTON LILY | | | | | 1 (6) | |
| WOODLAND TARWEED | 1 (14) | | | | | |
| PINE-FOOT | 1 (14) | 1 (5) | | | | |
| CALIFORNIA LICORICE FERN | | | | | 2 (2) | |
| PINEDROPS | | | | | 1 (4) | |
| AMERICAN VETCH | | | | | | |
| VETCH | | 1 (5) | | | 1 (2) | |
| ARNICA | | 1 (5) | | | | |
| MARBLED WILD GINGER | | 1 (5) | 1 (5) | | | |
| WESTERN CORALROOT | | | | | | |
| PACIFIC HOUND'S-TONGUE | | | | | | 1 (25) |
| CATCHWEED BEDSTRAW | | 1 (5) | | | 1 (2) | |
| LUPINE | 1 (14) | | | | | |
| VIOLET | | | | | 1 (2) | 1 (25) |
| WESTERN FESCUE | | 1 (10) | | 2 (16) | 1 (11) | |
| CALIFORNIA FESCUE | 1 (14) | | | 5 (16) | | |
| FESCUE | | | | 1 (16) | 1 (4) | |
| BROME | | 1 (5) | 1 (5) | | 1 (2) | |
| IDAHO FESCUE | | | 1 (5) | | | |
| CALIFORNIA SWEETGRASS | | | | | | |

Table 9. Confirmed locations of plant associations within the tanoak-maple and tanoak-Port-Orford cedar sub-series by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | | X | | X | X | X |
| ORLEANS RD | X | X | | X | X | X |
| LOWER TRINITY RD | X | | | | | |
| MAD RIVER RD | | X | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | | | |
| HAPPY CAMP RD | X | X | | | | |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | X | | | |
| SCOTT RIVER RD | | | | | | |

Table 10. Comparison of environment and soil variables by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| NUMBER OF PLOTS | 32 | 18 | 12 | 14 | 9 | 26 |
| **ENVIRONMENT:** ELEVATION (ft) | 2485 | 2280 | 2981 | 1232 | 1692 | 1909 |
| ASPECT (deg) | N. WEST S. EAST | N. WEST SOUTH | N. WEST | WEST N. EAST | NORTH S. EAST | N. EAST N. WEST |
| SLOPE (%) | 61 | 46 | 52 | 37 | 41 | 37 |
| RADIATION INDEX | .420 | .434 | .368 | .440 | .450 | .410 |
| SURFACE ROCK(%) | 16 | 17 | 20 | 2 | 3 | 3 |
| **SOILS:** SOIL DEPTH (in) | 35 | 38 | 34 | 35 | 34 | 34 |
| AWC (in) | 4.5 | 3.6 | 3.6 | 3.6 | 4.0 | 3.4 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 6 | 7 | 7 | 8 | 4 | 5 |
| CO. FRAG. (%) | 39 | 46 | 46 | 51 | 32 | 39 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown, black | very dark grayish brown, dark brown | black, strong brown, very dark grayish brown, dark brown | dark brown, very dark grayish brown | dark brown, dark yellowish brown | dark yellowish brown, dark brown |
| TEXTURE | gl, vgl, vgsl, gsl | gl, vgl, gsil | gl, xgl | vgl, xgl, vgsl | l, gl, vgl | vgl, gl |
| PARENT MATERIAL | schist granite greenstone mafic | phyllite schist greenstone sandstone | phyllite granite sandstone | mafic greenstone serpentine phyllite | serpentine | phyllite greenstone serpentine mafic schist |
| SOIL FAMILY | Clallam Bentpeak | Kindig Clallam Bentpeak | Clallam | Clallam Hugo | Goldridge Pardaloe | Hugo Clallam Goldridge |

Table 11. Comparison of stand structure variables by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series, for stands ≥ 200 years old.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| STAND AGE | 301 | 344 | 351 | 358 | 308 | 353 |
| NUMBER OF PLOTS | 24 | 17 | 11 | 13 | 7 | 24 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 7713 | 10263 | 8692 | 11016 | 8140 | 11737 |
| BASAL AREA ($ft^2$) | 204 | 267 | 225 | 269 | 310 | 309 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 950 | 845 | 535 | 974 | 435 | 528 |
| BASAL AREA ($ft^2$) | 54 | 51 | 44 | 60 | 26 | 36 |
| SITE CLASS | 1A-2 | 1A-1 | 1A-2 | 1A-2 | 3-4 | 1A-1 |
| SITE INDEX | 150-200 | 175-200 | 150-200 | 150-200 | 125-150 | 175-200 |
| STAND DENSITY INDEX | 387 | 467 | 413 | 478 | 535 | 481 |

Table 12. Comp of vegetation vars by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 91 | 98 | 93 | 99 | 99 | 98 |
| GRASS COVER | <1 | <1 | 0 | 1 | 1 | <1 |
| FORB COVER | 7 | 10 | 10 | 21 | 14 | 16 |
| SHRUB COVER | 15 | 65 | 21 | 53 | 58 | 53 |
| TREE COVER | 87 | 76 | 81 | 92 | 88 | 88 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 46 (100) | 49 (100) | 47 (100) | 39 (100) | 37 (100) | 38 (100) |
| TANOAK | 32 (100) | 26 (100) | 27 (91) | 30 (100) | 22 (100) | 26 (100) |
| PACIFIC MADRONE | 7 (56) | 6 (16) | 3 (25) | 1 (7) | 3 (44) | 5 (34) |
| CHINQUAPIN | 8 (9) | 11 (22) | 13 (41) | | 7 (22) | 4 (19) |
| CANYON LIVE OAK | 7 (50) | 7 (27) | 14 (33) | | 2 (11) | 2 (3) |
| SUGAR PINE | 11 (21) | 5 (11) | 6 (33) | 1 (7) | 4 (33) | 3 (19) |
| PACIFIC DOGWOOD | 7 (31) | 5 (38) | 4 (66) | 3 (64) | 3 (33) | 4 (11) |
| BIGLEAF MAPLE | 12 (100) | 7 (72) | | 8 (57) | | 5 (34) |
| BLACK OAK | 6 (25) | | | | | |
| PACIFIC YEW | 6 (6) | 7 (44) | 5 (8) | 5 (35) | 3 (44) | 8 (23) |
| INCENSE CEDAR | 7 (6) | 8 (5) | 1 (8) | | | |
| CALIFORNIA BAY | 5 (6) | | | 12 (71) | 5 (33) | 1 (3) |
| PORT-ORFORD CEDAR | 2 (3) | 4 (11) | | 33 (100) | 34 (100) | 33 (100) |
| WHITE FIR | | | | | | |
| KNOBCONE PINE | | | | | | |
| ALDER | 5 (3) | 9 (22) | | 9 (21) | 4 (22) | 12 (7) |
| PONDEROSA PINE | 5 (3) | | | | | |
| JEFFREY PINE | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 15 (100) | 7 (94) | 15 (100) | 8 (100) | 8 (100) | 9 (100) |
| DOUGLAS-FIR | 1 (53) | 2 (88) | 1 (41) | 1 (64) | 2 (44) | 1 (57) |
| CANYON LIVE OAK | 3 (57) | 3 (50) | 2 (50) | | 1 (11) | 1 (15) |
| SUGAR PINE | 1 (18) | 1 (11) | 1 (25) | | | |
| CHINQUAPIN | 1 (9) | 2 (27) | 3 (41) | | 1 (22) | 1 (23) |
| PACIFIC DOGWOOD | 3 (18) | 2 (33) | 1 (16) | 2 (50) | 1 (22) | 3 (3) |
| PACIFIC YEW | 1 (21) | 3 (66) | 1 (16) | 2 (21) | 1 (66) | 1 (23) |
| CALIFORNIA BAY | 1 (6) | 2 (22) | | 3 (100) | 2 (55) | 2 (11) |
| PACIFIC MADRONE | 1 (6) | 1 (5) | 1 (8) | 1 (14) | 1 (11) | 1 (3) |
| INCENSE CEDAR | 1 (6) | 5 (5) | | | | |
| WHITE FIR | | 1 (22) | 1 (8) | | | |
| BLACK OAK | 1 (6) | | | | | |
| BIGLEAF MAPLE | 1 (25) | 2 (16) | | 1 (14) | | 1 (3) |
| PORT-ORFORD CEDAR | 1 (3) | 1 (16) | | 3 (92) | 2 (77) | 3 (96) |
| ALDER | 1 (3) | 1 (11) | | 2 (14) | 1 (11) | 3 (7) |
| CASCARA | 1 (3) | | | | | |
| PONDEROSA PINE | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| DWARF OREGON-GRAPE | 12 (68) | 13 (88) | 10 (75) | 2 (57) | 1 (11) | 4 (76) |
| POISON OAK | 3 (62) | 1 (16) | 2 (16) | 1 (7) | 10 (11) | 1 (11) |
| SALAL | 6 (7) | 29 (100) | | 12 (64) | 18 (100) | 15 (96) |
| TRAILING BLACKBERRY | 1 (40) | 1 (50) | 1 (25) | | | |
| HAIRY HONEYSUCKLE | 2 (28) | 1 (5) | | 1 (14) | 1 (33) | 1 (3) |
| WILD ROSE | 2 (55) | 2 (49) | 1 (33) | 1 (21) | 1 (11) | 1 (23) |
| HAZELNUT | 2 (43) | 4 (66) | 3 (50) | 3 (71) | 2 (33) | 2 (19) |
| CREEPING SNOWBERRY | 1 (31) | 1 (11) | 1 (33) | | | |
| EVERGREEN HUCKLEBERRY | | 14 (44) | | 39 (100) | 24 (100) | 30 (100) |
| RED HUCKLEBERRY | 1 (3) | 3 (72) | 7 (33) | 6 (28) | 3 (55) | 4 (53) |
| RHODODENDRON | | 18 (38) | | 1 (7) | 6 (77) | 10 (50) |
| VINE MAPLE | 5 (12) | 25 (100) | 16 (100) | 5 (21) | | 4 (11) |
| OCEANSPRAY | 1 (6) | 1 (11) | 1 (16) | | | |
| HUCKLEBERRY OAK | | | | 2 (7) | 2 (33) | |
| OREGON BOXWOOD | 1 (3) | 1 (16) | | | | |
| SADLER OAK | | 2 (5) | | | | |
| THIMBLEBERRY | 2 (9) | 1 (5) | | 1 (21) | 3 (11) | 1 (11) |
| STREAMSIDE SNOWBERRY | | 1 (5) | 1 (8) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| DEERBRUSH | | | | | | |
| BLACK CAP | 2 (6) | 1 (16) | | 1 (7) | 1 (11) | |
| TALL OREGON-GRAPE | 1 (3) | | | | | |
| PYGMY HOLLY-GRAPE | | 2 (5) | | | | |
| SERVICEBERRY | 1 (3) | | 1 (8) | | 1 (11) | |
| CREEPING OREGON-GRAPE | | | | | | |
| SLENDER SALAL | | 2 (5) | 2 (8) | | | |
| WHITELEAF MANZANITA | 15 (3) | | | | | |
| PINEMAT MANZANITA | | | | | | |
| GREENLEAF MANZANITA | | | | | | |
| SNOWBRUSH | 40 (3) | | | | | |
| COFFEEBERRY | | | | | | |
| WESTERN AZALEA | | | | | 12 (100) | 3 (3) |
| GOOSEBERRY | | 1 (5) | | | | |
| HOARY MANZANITA | | | | | | |
| DWARF TANBARK | | | | | | |

Table 12. Comparison of vegetation variables by plant association in the tanoak-maple and tanoak-Port-Orford cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-ACMA/POMU1 | LIDE2/ACCI-GASH | LIDE2/ACCI | LIDE2-CHLA-UMCA1/VAOV | LIDE2-CHLA/VAOV-RHOC | LIDE2-CHLA/VAOV |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| BRACKENFERN | 1 (28) | 2 (50) | 1 (8) | 2 (14) | 1 (11) | 1 (34) |
| LITTLE PRINCE'S PINE | 1 (53) | 2 (27) | 1 (50) | | 1 (11) | 1 (7) |
| SWORDFERN | 2 (81) | 10 (94) | 2 (50) | 8 (92) | 5 (77) | 6 (88) |
| RATTLESNAKE PLANTAIN | 1 (40) | 1 (38) | 1 (41) | 1 (42) | 1 (66) | 1 (80) |
| WESTERN MODESTY | 11 (43) | 4 (50) | 2 (58) | | | |
| PRINCE'S PINE | 1 (31) | 1 (33) | 2 (41) | 1 (7) | 3 (33) | 1 (19) |
| VANILLA LEAF | 2 (28) | 2 (66) | 2 (58) | 1 (14) | | 2 (26) |
| WHITE-VEINED WINTERGREEN | 1 (18) | 1 (5) | 1 (58) | 1 (14) | 1 (11) | 1 (3) |
| HOOKER'S FAIRYBELL | 1 (34) | 1 (33) | 1 (41) | 1 (35) | 1 (11) | 1 (26) |
| STARFLOWER | 1 (37) | 1 (44) | 1 (41) | 1 (50) | 1 (44) | 1 (38) |
| WHITE INSIDE-OUT FLOWER | 1 (21) | 4 (5) | 2 (66) | | 2 (11) | 1 (26) |
| IRIS | 1 (25) | 2 (22) | | 1 (7) | 1 (22) | 1 (15) |
| BEARGRASS | | 1 (5) | 1 (8) | 2 (7) | 2 (55) | 2 (30 |
| RAYLESS ARNICA | 2 (15) | 1 (5) | 1 (16) | | | |
| REDWOOD VIOLET | 1 (9) | 2 (38) | 2 (25) | 2 (21) | | |
| HAWKWEED | 1 (31) | 1 (22) | | | | |
| TWINFLOWER | 1 (6) | 5 (33) | 9 (25) | 3 (42) | 3 (33) | 11 (23) |
| TRAILPLANT | 1 (18) | 1 (16) | 1 (16) | 2 (14) | | 1 (11) |
| SMALL INSIDE-OUT FLOWER | 2 (9) | 2 (16) | 1 (8) | 2 (42) | 4 (33) | 2 (38) |
| MOUNTAIN DOGBANE | 1 (3) | | 1 (16) | | | |
| FALSE SOLOMON'S SEAL | 1 (12) | 1 (33) | 1 (8) | 1 (22) | | 1 (11) |
| WHITE TRILLIUM | 1 (6) | 1 (61) | 1 (16) | 1 (85) | 1 (11) | 1 (38) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | 1 (15) | | 1 (16) | | | |
| CALIFORNIA HAREBELL | 1 (15) | | | | | |
| STREAM VIOLET | 1 (12) | 1 (5) | 1 (8) | | | |
| GROUND CONE | | | | | | |
| SLENDER-TUBED IRIS | 1 (3) | | 1 (8) | | | |
| SPOTTED CORALROOT | 1 (9) | | 1 (8) | | | |
| LEAFLESS WINTERGREEN | 1 (3) | | | | | |
| REDWOOD SORREL | | 8 (33) | | 7 (50) | 3 (66) | 8 (46) |
| DOGBANE | 1 (3) | | 1 (8) | | | |
| STRIPED CORALROOT | 1 (3) | | | | | |
| CALIFORNIA TOOTHWORT | | 1 (16) | | 2 (14) | 1 (11) | 1 (7) |
| OREGON TRILLIUM | 1 (6) | | | 1 (21) | 1 (33) | 2 (15) |
| PINE VIOLET | 1 (3) | | | | | |
| CORALROOT | 1 (3) | 1 (5) | | | | |
| TOOTHED WINTERGREEN | | | | | | |
| CANDYSTICK | | | | | | |
| BEDSTRAW | 1 (6) | 1 (11) | 1 (8) | | | |
| LILY | 1 (3) | | | | | |
| FAIRY SLIPPER | | 1 (16) | | | 1 (33) | 1 (3) |
| LICORICE FERN | | 1 (5) | | | | |
| IMBRICATE SWORDFERN | | 1 (5) | | | | |
| SOLOMON'S SEAL | 1 (7) | 1 (14) | | | | |
| SPREADING DOGBANE | 1 (3) | | | | | |
| OBSCURE BEDSTRAW | | | | | | |
| KELLOGIA | 1 (3) | | | | | |
| WOODLAND PHLOX | | | | | | |
| WESTERN SOLOMON'S SEAL | 1 (3) | 2 (5) | | | | |
| SCOULER'S HAREBELL | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | | | | | | |
| FAIRYBELL | 1 (3) | | | | | |
| PHANTOM ORCHID | | 1 (11) | 1 (8) | | | |
| ELEGANT BOG ORCHID | | | | | | |
| ALASKA BOG ORCHID | 1 (3) | 1 (5) | | | | |
| GNOME PLANT | | | | | | |
| PEAVINE | | | | | | |
| WASHINGTON LILY | | | | | | |
| WOODLAND TARWEED | 1 (3) | | | | | |
| PINE-FOOT | | | | | | |
| CALIFORNIA LICORICE FERN | | | | | | |
| PINEDROPS | 1 (3) | | | | | |
| AMERICAN VETCH | 3 (9) | 1 (14) | | | | |
| VETCH | 1 (3) | | | | | |
| ARNICA | | | | | | |
| MARBLED WILD GINGER | | | | 2 (57) | | |
| WESTERN CORALROOT | 1 (3) | | | | | |
| PACIFIC HOUND'S-TONGUE | 1 (6) | | | | | |
| CATCHWEED BEDSTRAW | | 1 (11) | | | | |
| LUPINE | | | | | | |
| VIOLET | 1 (3) | | 1 (8) | | | |
| WESTERN FESCUE | 1 (9) | 1 (5) | | 2 (7) | | 1 (7) |
| CALIFORNIA FESCUE | 2 (3) | | | | | |
| FESCUE | 1 (3) | 1 (22) | | 2 (7) | | 1 (18) |
| BROME | | | | | | |
| IDAHO FESCUE | | | | | | |
| CALIFORNIA SWEETGRASS | | 2 (11) | | 2 (35) | 2 (44) | 2 (7) |

Table 13. Confirmed locations of the tanoak-Port-Orford cedar, tanoak-black oak and tanoak-incense cedar sub-series plant associations by National Forest and Ranger District.

| LOCATION | LIDE2-CHLA/ BENE1/ LIBOL | LIDE2-CHLA-ALRH/ RIPARIAN | LIDE2-CHLA/ ACCI | LIDE2-CHLA/ VAPA | LIDE2-QUKE/ ROSE | LIDE2-LIDE3/ FECA |
|---|---|---|---|---|---|---|
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | X | | X |
| ORLEANS RD | X | X | | X | X | X |
| LOWER TRINITY RD | | | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | | X | | X | X | X |
| HAPPY CAMP RD | X | X | X | | X | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RD | | | | | | |

Table 14. Comparison of environment and soil variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak, and tanoak-incense cedar sub-series.

| VARIABLE | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
|---|---|---|---|---|---|---|
| NUMBER OF PLOTS | 10 | 4 | 7 | 4 | 16 | 7 |
| **ENVIRONMENT:** ELEVATION (ft) | 2815 | 2415 | 2470 | 2885 | 2280 | 2534 |
| ASPECT (deg) | NORTH | EAST | N. WEST | VARIABLE | N. WEST S. WEST | S. WEST N. WEST |
| SLOPE (%) | 46 | 25 | 41 | 25 | 32 | 36 |
| RADIATION INDEX | .360 | .450 | .370 | .470 | .468 | .500 |
| SURFACE ROCK(%) | 3 | 27 | 8 | 3 | 2 | 3 |
| **SOILS:** SOIL DEPTH (in) | 34 | 32 | 37 | 38 | 40 | 34 |
| AWC (in) | 3.1 | 4.3 | 3.6 | 2.8 | 5.5 | 4.1 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 4 | 3 | 7 | 4 | 6 | 7 |
| CO. FRAG. (%) | 34 | 34 | 50 | 43 | 34 | 31 |
| COLOR | very dark grayish brown | dark grayish brown | dark brown, dark yellowish brown | dark gray | dark brown, dark reddish brown, dark yellowish brown | dark brown, very dark grayish brown |
| TEXTURE | vgl, gl | gl, vgl | vgl, xgsl | vgsl | gl, xgl, gscl | gl, gsil |
| PARENT MATERIAL | schist greenstone | mafic serpentine | mafic greenstone | serpentine | phyllite schist greenstone | serpentine |
| SOIL FAMILY | Clallam Forgay | Clallam | Hugo | Weitchpec | Goldridge Holland Clallam Hugo | undescribed |

Table 15. Comparison of stand structure variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak and tanoak-incense cedar sub-series, for stands ≥ 200 years old.

| VARIABLE | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
|---|---|---|---|---|---|---|
| STAND AGE | 410 | 433 | 325 | 447 | 297 | 296 |
| NUMBER OF PLOTS | 9 | 4 | 7 | 3 | 12 | 3 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 12778 | 8532 | 6744 | 12018 | 8770 | 9385 |
| BASAL AREA ($ft^2$) | 335 | 233 | 204 | 329 | 214 | 300 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 160 | 235 | 511 | 92 | 1676 | 396 |
| BASAL AREA ($ft^2$) | 13 | 17 | 38 | 9 | 89 | 17 |
| SITE CLASS | 1A-2 | 3 | 1A-1 | 1A-1 | 1A-1 | 3-4 |
| SITE INDEX | 150-200 | 150 | 175-200 | 175-200 | 175-200 | 100-125 |
| STAND DENSITY INDEX | 517 | 406 | 256 | 534 | 463 | 414 |

Table 16. Comparison of vegetation variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak, and tanoak-incense cedar sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 96 | 96 | 95 | 96 | 91 | 92 |
| GRASS COVER | <1 | 2 | <1 | 2 | <1 | 16 |
| FORB COVER | 13 | 13 | 8 | 10 | 4 | 1 |
| SHRUB COVER | 12 | 25 | 54 | 11 | 3 | 6 |
| TREE COVER | 90 | 89 | 90 | 90 | 87 | 80 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 37 (100) | 17 (100) | 39 (100) | 45 (100) | 49 (100) | 46 (100) |
| TANOAK | 8 (100) | 9 (75) | 18 (85) | 9 (100) | 41 (100) | 14 (42) |
| PACIFIC MADRONE | 9 (20) | | 12 (28) | 2 (50) | 6 (56) | 10 (71) |
| CHINQUAPIN | 5 (10) | 1 (25) | 2 (42) | | 3 (18) | 1 (14) |
| CANYON LIVE OAK | 5 (10) | | 6 (14) | 8 (25) | 4 (12) | 2 (28) |
| SUGAR PINE | 3 (20) | 1 (25) | | 3 (50) | 2 (6) | 4 (42) |
| PACIFIC DOGWOOD | 2 (30) | 6 (50) | 3 (57) | | 5 (37) | |
| BIGLEAF MAPLE | 7 (30) | 2 (25) | 11 (42) | | | 1 (14) |
| BLACK OAK | | | | | 6 (100) | 12 (28) |
| PACIFIC YEW | 2 (30) | 5 (50) | 3 (42) | 2 (25) | | |
| INCENSE CEDAR | | | | 12 (25) | 2 (6) | 15 (100) |
| CALIFORNIA BAY | | | | 1 (25) | | 32 (28) |
| PORT-ORFORD CEDAR | 40 (100) | 33 (100) | 22 (85) | 32 (100) | | |
| WHITE FIR | 3 (20) | 5 (25) | 3 (14) | | | |
| KNOBCONE PINE | | | | | | |
| ALDER | 2 (20) | 23 (100) | 25 (14) | | | |
| PONDEROSA PINE | | | | | | 30 (14) |
| JEFFREY PINE | | | | | | 1 (14) |

Table 16. Comparison of vegetation variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak, and tanoak-incense cedar sub-series (continued).

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 11 (100) | 15 (100) | 15 (100) | 27 (75) | 23 (100) | 10 (100) |
| DOUGLAS-FIR | 1 (80) | 5 (25) | 3 (28) | 1 (25) | 3 (75) | 2 (71) |
| CANYON LIVE OAK | 2 (30) | 1 (75) | 1 (28) | 15 (25) | 2 (25) | 1 (28) |
| SUGAR PINE | | | | | 1 (18) | 1 (42) |
| CHINQUAPIN | 1 (10) | 1 (25) | 2 (28) | 1 (50) | 2 (12) | |
| PACIFIC DOGWOOD | 1 (10) | 1 (25) | 2 (42) | | 3 (18) | |
| PACIFIC YEW | 1 (40) | 1 (25) | | 1 (50) | | |
| CALIFORNIA BAY | 1 (10) | | 2 (14) | 3 (25) | 1 (12) | 3 (42) |
| PACIFIC MADRONE | 1 (10) | | 1 (14) | 1 (25) | | 1 (14) |
| INCENSE CEDAR | | | | | 1 (6) | 2 (71) |
| WHITE FIR | 1 (40) | 1 (50) | 2 (28) | 1 (25) | | |
| BLACK OAK | | | | | 1 (25) | 2 (14) |
| BIGLEAF MAPLE | | 2 (25) | 1 (14) | | 1 (6) | |
| PORT-ORFORD CEDAR | 3 (100) | 5 (75) | 2 (71) | 2 (75) | | |
| ALDER | | | 5 (14) | | | |
| CASCARA | | | | | | |
| PONDEROSA PINE | | | | | | |

Table 16. Comparison of vegetation variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak, and tanoak-incense cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| DWARF OREGON-GRAPE | 11 (100) | 2 (25) | 19 (85) | | 2 (12) | 2 (28) |
| POISON OAK | | 15 (25) | | | 2 (50) | 3 (28) |
| SALAL | 4 (60) | 21 (50) | 42 (42) | | 1 (6) | 1 (14) |
| TRAILING BLACKBERRY | | | | | 1 (25) | 1 (14) |
| HAIRY HONEYSUCKLE | | | | | 1 (18) | 2 (28) |
| WILD ROSE | 1 (60) | 1 (25) | 3 (57) | 2 (25) | 1 (68) | 1 (28) |
| HAZELNUT | 2 (60) | 4 (25) | 4 (57) | | 2 (31) | 1 (22) |
| CREEPING SNOWBERRY | | | | | 1 (25) | 1 (22) |
| EVERGREEN HUCKLEBERRY | 2 (10) | | 1 (14) | | | 2 (28) |
| RED HUCKLEBERRY | 2 (80) | 1 (50) | 2 (42) | 5 (100) | | 2 (14) |
| RHODODENDRON | 5 (20) | | 6 (28) | 1 (25) | | |
| VINE MAPLE | 1 (20) | 6 (25) | 37 (100) | | | |
| OCEANSPRAY | | | | | | 1 (28) |
| HUCKLEBERRY OAK | 2 (10) | | | | | 4 (42) |
| OREGON BOXWOOD | | | | | | |
| SADLER OAK | | | | | | |
| THIMBLEBERRY | | 1 (25) | | | | |
| STREAMSIDE SNOWBERRY | | | | | 2 (12) | |
| DEERBRUSH | | | | | 1 (6) | 4 (11) |

| | | | | | | |
|---|---|---|---|---|---|---|
| BLACK CAP | | | 1 (14) | 15 (25) | | |
| TALL OREGON-GRAPE | | | | | 1 (12) | |
| PYGMY HOLLY-GRAPE | | | | | 1 (6) | 1 (28) |
| SERVICEBERRY | 8 (10) | 1 (25) | | 5 (25) | | |
| CREEPING OREGON-GRAPE | | | | | | |
| SLENDER SALAL | | | | | | |
| WHITELEAF MANZANITA | | | | | | 1 (22) |
| PINEMAT MANZANITA | | | | | | 1 (14) |
| GREENLEAF MANZANITA | | | | | | |
| SNOWBRUSH | | | | | | |
| COFFEEBERRY | | | | | | 1 (14) |
| WESTERN AZALEA | 4 (20) | 20 (25) | 2 (14) | | | |
| GOOSEBERRY | | | | | 1 (6) | |
| HOARY MANZANITA | | | | | | |
| DWARF TANBARK | | | | | | |

Table 16. Comparison of vegetation variables by plant association in the tanoak-Port-Orford cedar, tanoak-black oak, and tanoak-incense cedar sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CHLA/BENE1/LIBOL | LIDE2-CHLA-ALRH/RIPARIAN | LIDE2-CHLA/ACCI | LIDE2-CHLA/VAPA | LIDE2-QUKE/ROSE | LIDE2-LIDE3/FECA |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| BRACKENFERN | | 1 (50) | 1 (28) | | 1 (62) | 1 (14) |
| LITTLE PRINCE'S PINE | 1 (20) | 1 (14) | | 1 (25) | 1 (62) | 1 (11) |
| SWORDFERN | 3 (70) | 1 (75) | 4 (85) | 2 (75) | 1 (18) | 2 (57) |
| RATTLESNAKE PLANTAIN | 1 (50) | | 1 (14) | 1 (75) | 1 (50) | 1 (57) |
| WESTERN MODESTY | | | | | 7 (18) | 7 (42) |
| PRINCE'S PINE | 1 (30) | 1 (25) | 1 (28) | 3 (75) | 2 (37) | 1 (28) |
| VANILLA LEAF | 2 (80) | 2 (100) | 3 (57) | 1 (25) | 1 (25) | 1 (11) |
| WHITE-VEINED WINTERGREEN | 1 (30) | 1 (25) | 1 (14) | 1 (25) | 1 (31) | 1 (14) |
| HOOKER'S FAIRYBELL | 1 (70) | 1 (25) | 1 (42) | 1 (50) | 1 (37) | 1 (28) |
| STARFLOWER | 1 (80) | 2 (50) | 1 (42) | 1 (50) | 1 (37) | 1 (14) |
| WHITE INSIDE-OUT FLOWER | 2 (10) | 1 (50) | 2 (28) | 1 (25) | 1 (43) | 1 (11) |
| IRIS | 1 (20) | 1 (25) | 2 (14) | 1 (50) | 1 (18) | 1 (71) |
| BEARGRASS | 1 (10) | | 1 (14) | 2 (100) | 1 (6) | 1 (14) |
| RAYLESS ARNICA | 1 (20) | | 1 (14) | 1 (25) | 1 (12) | 1 (22) |
| REDWOOD VIOLET | 1 (30) | | | | | |
| HAWKWEED | | | | | 1 (6) | 1 (57) |
| TWINFLOWER | 5 (80) | 3 (75) | 7 (57) | 1 (50) | | |
| TRAILPLANT | 1 (10) | | 1 (28) | | 1 (6) | |
| SMALL INSIDE-OUT FLOWER | 2 (40) | | | | | |
| MOUNTAIN DOGBANE | | | | | 1 (6) | |
| FALSE SOLOMON'S SEAL | 1 (30) | 1 (25) | 1 (14) | 1 (50) | 1 (6) | |
| WHITE TRILLIUM | 1 (10) | 1 (25) | 1 (28) | | 1 (6) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | | | | | 1 (18) | |
| CALIFORNIA HAREBELL | | | | | | 1 (11) |
| STREAM VIOLET | | | | | 1 (6) | |
| GROUND CONE | | | | | 1 (6) | |
| SLENDER-TUBED IRIS | | | | | 1 (6) | |
| SPOTTED CORALROOT | | | | | 1 (6) | |
| LEAFLESS WINTERGREEN | | | | | 1 (6) | 1 (11) |
| REDWOOD SORREL | 3 (20) | | 4 (14) | | | 5 (14) |
| DOGBANE | | | | | 1 (6) | 1 (14) |
| STRIPED CORALROOT | | | | | 1 (6) | |
| CALIFORNIA TOOTHWORT | | | | | 1 (6) | |
| OREGON TRILLIUM | | | | | | 1 (14) |
| PINE VIOLET | | | | | 1 (6) | 1 (14) |
| CORALROOT | | | | | | |
| TOOTHED WINTERGREEN | | | | | | |
| CANDYSTICK | | | | | | |
| BEDSTRAW | | 1 (25) | 1 (42) | | 1 (12) | 1 (14) |
| LILY | | | | | | |
| FAIRY SLIPPER | 1 (20) | | 1 (42) | | 1 (6) | |
| LICORICE FERN | | | | | | |
| IMBRICATE SWORDFERN | | | | | 1 (6) | |
| SOLOMON'S SEAL | | | | | | |
| SPREADING DOGBANE | | | | | 1 (6) | |
| OBSCURE BEDSTRAW | | | | | | 1 (14) |
| KELLOGIA | | | | | | |
| WOODLAND PHLOX | | | | | | |
| WESTERN SOLOMON'S SEAL | | | | | | |
| SCOULER'S HAREBELL | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | | | | | | 1 (11) |
| FAIRYBELL | | | | | | |
| PHANTOM ORCHID | | | | | | |
| ELEGANT BOG ORCHID | | | | | 1 (6) | |
| ALASKA BOG ORCHID | | | | | | |
| GNOME PLANT | | | | | | |
| PEAVINE | | | | | | 3 (14) |
| WASHINGTON LILY | | | | | | |
| WOODLAND TARWEED | | | | | | |
| PINE-FOOT | | | | | | |
| CALIFORNIA LICORICE FERN | | | | | | 1 (14) |
| PINEDROPS | | | | | | |
| AMERICAN VETCH | | | | | | |
| VETCH | | | | | | |
| ARNICA | | | | | | |
| MARBLED WILD GINGER | | | 1 (14) | | | |
| WESTERN CORALROOT | | | | | | |
| PACIFIC HOUND'S-TONGUE | | | | | 1 (6) | |
| CATCHWEED BEDSTRAW | | | | | | |
| LUPINE | | | | | | |
| VIOLET | | | | | | 1 (14) |
| WESTERN FESCUE | 1 (10) | | | 5 (25) | 1 (6) | 2 (28) |
| CALIFORNIA FESCUE | | | | | 1 (6) | 23 (71) |
| FESCUE | | | | 1 (25) | 1 (12) | |
| BROME | | | | | 1 (6) | |
| IDAHO FESCUE | | | | | | |
| CALIFORNIA SWEETGRASS | | | | | | 1 (14) |

Table 17. Confirmed locations of the tanoak-canyon live oak sub-series plant associations by National Forest and Ranger District.

| | | | PLANT ASSOCIATION | | | |
|---|---|---|---|---|---|---|
| LOCATION | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | X | | X | X |
| ORLEANS RD | X | X | X | | | X |
| LOWER TRINITY RD | X | | | X | X | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | X | X | X | X |
| HAPPY CAMP RD | | | | X | | |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RD | | | | | | |

Table 18. Comparison of environment and soil variables by plant association in the tanoak-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| NUMBER OF PLOTS | 20 | 19 | 14 | 18 | 18 | 13 |
| **ENVIRONMENT:** ELEVATION (ft) | 3342 | 1604 | 2983 | 2206 | 2252 | 3217 |
| ASPECT (deg) | WEST S. EAST | N. WEST | S. WEST | S. WEST S. EAST | S. EAST S. WEST | WEST N. EAST |
| SLOPE (%) | 56 | 63 | 66 | 47 | 64 | 57 |
| RADIATION INDEX | .481 | .404 | .481 | .493 | .462 | .422 |
| SURFACE ROCK(%) | 35 | 8 | 30 | 7 | 8 | 34 |
| **SOILS:** SOIL DEPTH (in) | 33 | 31 | 35 | 35 | 31 | 36 |
| AWC (in) | 2.7 | 3.5 | 2.9 | 3.9 | 2.9 | 2.9 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 7 | 5 | 6 | 7 | 9 | 8 |
| CO. FRAG. (%) | 38 | 40 | 53 | 31 | 50 | 42 |
| COLOR | dark brown, very dark brown, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown | dark brown, very dark grayish brown, very dark brown | dark brown, dark yellowish brown, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown |
| TEXTURE | gl, vgl | gl, vgl, xgl | gl, xgl, vgl, xkl | gl, cl, vgl | gl, xgl, vgsl | gl, vgl, l |
| PARENT MATERIAL | schist greenstone phyllite | sandstone greenstone mafic phyllite | schist phyllite sandstone | schist mafic serpentine greenstone | greenstone phyllite sandstone granite serpentine | semischist schist |
| SOIL FAMILY | Doerock Kindig | Goldridge Clallam Hugo | Clallam Kindig | Clallam Maymen | Kistern Clallam Deadwood Gilligae | Kindig Doerock Clallam |

Table 19. Comparison of stand structure variables by plant association in the tanoak-canyon live oak sub-series, for stands ≥ 200 years old.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| STAND AGE | 308 | 245 | 297 | 300 | 283 | 283 |
| NUMBER OF PLOTS | 10 | 8 | 13 | 12 | 12 | 10 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 7254 | 6483 | 9187 | 6719 | 6350 | 10160 |
| BASAL AREA ($ft^2$) | 210 | 163 | 257 | 174 | 173 | 285 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 916 | 1130 | 764 | 1459 | 1190 | 534 |
| BASAL AREA ($ft^2$) | 54 | 77 | 43 | 88 | 73 | 37 |
| SITE CLASS | 2-4 | 1A-3 | 1A-1 | 1A-2 | 1A-2 | 1 |
| SITE INDEX | 100-150 | 125-200 | 175-200 | 150-200 | 150-200 | 175 |
| STAND DENSITY INDEX | 411 | 422 | 431 | 425 | 362 | 469 |

Table 20. Comparison of vegetation variables by plant association in the tanoak-cnayon live oak sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 92 | 88 | 95 | 91 | 90 | 94 |
| GRASS COVER | <1 | <1 | <1 | 1 | <1 | <1 |
| FORB COVER | 3 | 9 | 9 | 4 | 9 | 5 |
| SHRUB COVER | 3 | 46 | 39 | 8 | 8 | 16 |
| TREE COVER | 92 | 85 | 87 | 86 | 82 | 89 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 41 (100) | 47 (68) | 47 (100) | 38 (100) | 34 (100) | 63 (100) |
| TANOAK | 22 (100) | 23 (73) | 26 (100) | 28 (94) | 33 (94) | 26 (92) |
| PACIFIC MADRONE | 14 (85) | 5 (68) | 8 (64) | 13 (77) | 9 (77) | 7 (53) |
| CHINQUAPIN | 20 (85) | 5 (26) | 12 (35) | 10 (11) | 3 (5) | 8 (38) |
| CANYON LIVE OAK | 21 (95) | 20 (63) | 18 (92) | 12 (94) | 30 (100) | 13 (92) |
| SUGAR PINE | 7 (35) | 4 (31) | 12 (28) | 13 (66) | 8 (44) | 4 (30) |
| PACIFIC DOGWOOD | | 5 (21) | 4 (28) | 3 (11) | 3 (16) | 4 (38) |
| BIGLEAF MAPLE | 5 (5) | 2 (5) | 7 (35) | | 2 (5) | 5 (23) |
| BLACK OAK | 2 (5) | | | 8 (100) | | |
| PACIFIC YEW | | | 2 (7) | | | |
| INCENSE CEDAR | | | | | | |
| CALIFORNIA BAY | | 7 (5) | 5 (14) | | | |
| PORT-ORFORD CEDAR | | | 3 (7) | | | 8 (7) |
| WHITE FIR | | | 1 (7) | | | 6 (23) |
| KNOBCONE PINE | 8 (35) | 1 (5) | 2 (7) | | | |
| ALDER | 2 (5) | | | | | |
| PONDEROSA PINE | | | | 5 (11) | 10 (5) | |
| JEFFREY PINE | | | | 3 (5) | | |

Table 20. Comparison of vegetation variables by plant association in the tanoak-canyon live oak sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 13 (100) | 22 (94) | 21 (100) | 15 (94) | 15 (100) | 15 (92) |
| DOUGLAS-FIR | 3 (70) | 2 (84) | 2 (64) | 4 (77) | 2 (66) | 2 (61) |
| CANYON LIVE OAK | 6 (95) | 2 (94) | 4 (92) | 4 (77) | 8 (100) | 5 (22) |
| SUGAR PINE | 1 (20) | 1 (31) | 1 (42) | 1 (55) | 1 (55) | 2 (7) |
| CHINQUAPIN | 7 (14) | 1 (21) | 10 (21) | 2 (22) | 1 (5) | 1 (15) |
| PACIFIC DOGWOOD | 1 (10) | 2 (42) | 1 (14) | | 3 (16) | 3 (15) |
| PACIFIC YEW | 1 (5) | 1 (15) | 1 (14) | | | |
| CALIFORNIA BAY | 1 (5) | 1 (26) | 25 (7) | 1 (16) | 1 (5) | |
| PACIFIC MADRONE | 1 (10) | 2 (36) | 1 (21) | 1 (22) | 1 (44) | |
| INCENSE CEDAR | 1 (5) | | | 1 (5) | | 1 (15) |
| WHITE FIR | 2 (5) | | 1 (14) | | 1 (5) | 1 (23) |
| BLACK OAK | | | | 1 (38) | | |
| BIGLEAF MAPLE | 1 (5) | 1 (5) | 1 (14) | | 1 (5) | |
| PORT-ORFORD CEDAR | | | 1 (7) | | | 1 (15) |
| ALDER | | | 1 (7) | | | |
| CASCARA | | | | | | |
| PONDEROSA PINE | 1 (5) | | | 1 (5) | | |

Table 20. Comparison of vegetation variables by plant association in the tanoak-canyon live oak sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| DWARF OREGON-GRAPE | 1 (25) | 4 (36) | 13 (100) | 3 (16) | 4 (27) | 11 (100) |
| POISON OAK | 5 (5) | 2 (52) | 4 (35) | 12 (83) | 5 (100) | 2 (15) |
| SALAL | 1 (5) | 10 (89) | 21 (100) | | | |
| TRAILING BLACKBERRY | 1 (40) | 1 (21) | 1 (28) | | 1 (5) | 1 (46) |
| HAIRY HONEYSUCKLE | 1 (5) | 2 (36) | 1 (42) | 2 (55) | 2 (61) | 1 (7) |
| WILD ROSE | 1 (25) | 1 (52) | 1 (64) | 1 (43) | 2 (43) | 2 (68) |
| HAZELNUT | 2 (5) | 3 (26) | 2 (14) | 2 (27) | 3 (16) | 1 (15) |
| CREEPING SNOWBERRY | 1 (30) | | 1 (35) | 1 (22) | 1 (22) | 1 (38) |
| EVERGREEN HUCKLEBERRY | 2 (5) | 37 (100) | 1 (14) | | 2 (11) | |
| RED HUCKLEBERRY | 2 (5) | 1 (5) | 1 (28) | | | 1 (15) |
| RHODODENDRON | 1 (5) | 2 (21) | 10 (7) | | | |
| VINE MAPLE | | 3 (5) | | | | 2 (7) |
| OCEANSPRAY | | 1 (5) | 3 (21) | | 4 (11) | 2 (7) |
| HUCKLEBERRY OAK | | 2 (5) | 11 (14) | | | 1 (7) |
| OREGON BOXWOOD | 1 (5) | | 1 (7) | | | 1 (23) |
| SADLER OAK | 1 (10 | | | | | 1 (7) |
| THIMBLEBERRY | | 1 (10) | | | 1 (5) | 1 (7) |
| STREAMSIDE SNOWBERRY | | 1 (5) | | | | 3 (7) |
| DEERBRUSH | | | | 2 (5) | 1 (5) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| BLACK CAP | | | | | 1 (11) | 1 (7) |
| TALL OREGON-GRAPE | | | | 2 (5) | | |
| PYGMY HOLLY-GRAPE | | | | 2 (5) | | |
| SERVICEBERRY | | 1 (5) | 1 (14) | 1 (5) | 1 (5) | |
| CREEPING OREGON-GRAPE | | | | 1 (5) | 1 (16) | |
| SLENDER SALAL | | | | | | |
| WHITELEAF MANZANITA | | 1 (26) | 4 (7) | 1 (5) | | |
| PINEMAT MANZANITA | | | | 24 (5) | | |
| GREENLEAF MANZANITA | 3 (5) | 1 (5) | 3 (7) | | 2 (5) | 1 (7) |
| SNOWBRUSH | 1 (5) | 14 (36) | | | | 5 (7) |
| COFFEEBERRY | | 1 (5) | | | | |
| WESTERN AZALEA | | | 5 (21) | | | |
| GOOSEBERRY | 1 (5) | | | | 1 (5) | |
| HOARY MANZANITA | | 2 (5) | | | | |
| DWARF TANBARK | | | 5 (7) | | | |

Table 20. Comparison of vegetation variables by plant association in the tanoak-canyon live oak sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-QUCH2/ ROCKPILE | LIDE2-QUCH2/ VAOV | LIDE2-QUCH2/ BENE1-GASH | LIDE2-QUCH2-QUKE/ RHDI | LIDE2-QUCH2/ RHDI | LIDE2-QUCH2/ BENE1 |
| HERBS & GRASSES (% COVER) (CONSTANCY) | | | | | | |
| BRACKENFERN | 1 (60) | 3 (73) | 1 (50) | 1 (55) | 1 (50) | 2 (23) |
| LITTLE PRINCE'S PINE | 1 (65) | 1 (15) | 1 (28) | 1 (38) | 1 (55) | 1 (53) |
| SWORDFERN | 2 (10) | 4 (63) | 2 (78) | 2 (27) | 1 (55) | 2 (53) |
| RATTLESNAKE PLANTAIN | 1 (25) | 1 (47) | 1 (71) | 1 (16) | 1 (16) | 1 (76) |
| WESTERN MODESTY | 1 (14) | 4 (42) | 3 (85) | 1 (5) | 8 (55) | 4 (84) |
| PRINCE'S PINE | 2 (75) | 1 (26) | 2 (64) | 2 (5) | 2 (33) | 7 (61) |
| VANILLA LEAF | | 2 (15) | 2 (57) | 3 (11) | 2 (33) | 1 (61) |
| WHITE-VEINED WINTERGREEN | 1 (35) | 1 (10) | 1 (42) | 1 (16) | 1 (11) | 1 (84) |
| HOOKER'S FAIRYBELL | 1 (10) | 1 (15) | 1 (21) | 1 (16) | 1 (27) | 1 (38) |
| STARFLOWER | 1 (14) | 1 (36) | 1 (28) | 1 (22) | 1 (38) | 1 (38) |
| WHITE INSIDE-OUT FLOWER | 1 (10) | 2 (10) | 2 (14) | 1 (11) | 3 (22) | 1 (23) |
| IRIS | 1 (14) | 1 (31) | 2 (35) | 1 (33) | 2 (72) | 1 (30) |
| BEARGRASS | 2 (25) | 2 (36) | 3 (28) | 2 (16) | | 1 (23) |
| RAYLESS ARNICA | 1 (5) | 1 (5) | | 1 (27) | 1 (22) | 1 (7) |
| REDWOOD VIOLET | | 1 (21) | 1 (14) | | | 1 (30) |
| HAWKWEED | 1 (6) | 1 (31) | 1 (42) | 1 (27) | 1 (22) | 1 (15) |
| TWINFLOWER | 1 (5) | 2 (15) | 1 (21) | | | 5 (7) |
| TRAILPLANT | | 1 (10) | | | 1 (22) | 2 (30) |
| SMALL INSIDE-OUT FLOWER | 1 (5) | 2 (63) | 2 (14) | | 1 (11) | 1 (7) |
| MOUNTAIN DOGBANE | 1 (14) | | 1 (21) | 1 (11) | 1 (33) | 1 (7) |
| FALSE SOLOMON'S SEAL | | 1 (5) | 1 (21) | | | 1 (7) |
| WHITE TRILLIUM | | 1 (5) | 1 (14) | | | 1 (15) |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | | | | 1 (16) | 2 (11) | |
| CALIFORNIA HAREBELL | | 1 (10) | | 1 (5) | 1 (16) | 1 (7) |
| STREAM VIOLET | 1 (5) | | 1 (14) | 1 (5) | 1 (5) | 1 (7) |
| GROUND CONE | | 1 (5) | 1 (14) | 1 (5) | 1 (15) | 1 (22) |
| SLENDER-TUBED IRIS | | | 20 (7) | 1 (11) | 1 (5) | |
| SPOTTED CORALROOT | 1 (10) | | | | 1 (5) | 1 (7) |
| LEAFLESS WINTERGREEN | | | | 1 (11) | 1 (11) | 1 (23) |
| REDWOOD SORREL | | 1 (5) | | | 1 (5) | |
| DOGBANE | | | | 1 (5) | 1 (5) | |
| STRIPED CORALROOT | 1 (5) | | 1 (7) | | | 1 (15) |
| CALIFORNIA TOOTHWORT | 1 (5) | 1 (5) | | | 1 (5) | 4 (7) |
| OREGON TRILLIUM | | | 1 (7) | | | 1 (7) |
| PINE VIOLET | | | | 1 (16) | 1 (5) | |
| CORALROOT | 1 (5) | 1 (5) | 1 (7) | | | 1 (23) |
| TOOTHED WINTERGREEN | | 1 (5) | 1 (21) | | 1 (11) | |
| CANDYSTICK | | | | 1 (5) | 1 (5) | |
| BEDSTRAW | | 1 (5) | 1 (7) | | | 1 (7) |
| LILY | 1 (5) | | | | | 1 (7) |
| FAIRY SLIPPER | | | 1 (7) | | | 2 (7) |
| LICORICE FERN | | | 1 (7) | | | |
| IMBRICATE SWORDFERN | 1 (5) | | | 2 (5) | 1 (5) | 1 (7) |
| SOLOMON'S SEAL | 1 (5) | | | | | 1 (7) |
| SPREADING DOGBANE | 1 (6) | | | | | |
| OBSCURE BEDSTRAW | 1 (6) | | | 1 (5) | 2 (5) | |
| KELLOGIA | | | | 1 (5) | 1 (5) | |
| WOODLAND PHLOX | | | | | | |
| WESTERN SOLOMON'S SEAL | | | | | | 1 (15) |
| SCOULER'S HAREBELL | | | 1 (9) | | | 2 (7) |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | 1 (6) | | | 1 (5) | 1 (5) | |
| FAIRYBELL | | | 1 (14) | | | |
| PHANTOM ORCHID | | | | | | 1 (7) |
| ELEGANT BOG ORCHID | | | | | 1 (11) | |
| ALASKA BOG ORCHID | 1 (5) | | | | | |
| GNOME PLANT | | | 1 (14) | | | |
| PEAVINE | | 1 (5) | | | 1 (5) | |
| WASHINGTON LILY | | | 1 (7) | | | |
| WOODLAND TARWEED | | | 1 (7) | 1 (5) | 1 (5) | |
| PINE-FOOT | | | | | | |
| CALIFORNIA LICORICE FERN | | 8 (5) | | 1 (5) | | |
| PINEDROPS | | | | | | |
| AMERICAN VETCH | | | | | 3 (5) | |
| VETCH | | | | | 1 (5) | |
| ARNICA | | 3 (5) | 1 (7) | | | |
| MARBLED WILD GINGER | | | | 1 (5) | 1 (5) | |
| WESTERN CORALROOT | 1 (6) | | | | | |
| PACIFIC HOUND'S-TONGUE | | | | | | |
| CATCHWEED BEDSTRAW | | | | | | 1 (7) |
| LUPINE | | | | | | |
| VIOLET | | | | | | 1 (7) |
| WESTERN FESCUE | 2 (5) | 1 (31) | 1 (21) | 1 (38) | 1 (16) | 1 (15) |
| CALIFORNIA FESCUE | | 5 (5) | | 4 (11) | 13 (11) | 3 (7) |
| FESCUE | 1 (15) | | 1 (7) | 1 (5) | | 1 (7) |
| BROME | | 2 (5) | | | 1 (5) | |
| IDAHO FESCUE | | | | | 1 (5) | |
| CALIFORNIA SWEETGRASS | | | | | | |

Table 21. Confirmed locations of the plant associations in the tanoak-chinquapin sub-series by National Forest and Ranger District.

| | | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|---|
| LOCATION | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2/RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | | | | X |
| ORLEANS RD | X | X | X | X | X | X |
| LOWER TRINITY RD | | | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | | X | X | X | |
| HAPPY CAMP RD | | | | | X | |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | | | | | | |
| SCOTT RIVER RO | | | | | | |

Table 22. Comparison of environment and soil variables by plant association in the tanoak-chinquapin sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-CACH2/ GASH | LIDE2-CACH2/ RHMA-GASH | LIDE2-CACH2/ RHMA/ XETE | LIDE2-CACH2/ PTAQL | LIDE2-CACH2/ BENE1 | LIDE2-CACH2/ VAOV-GASH |
| NUMBER OF PLOTS | 20 | 21 | 12 | 5 | 34 | 4 |
| **ENVIRONMENT:** ELEVATION (ft) | 2701 | 2857 | 3214 | 3340 | 2849 | 2090 |
| ASPECT (deg) | N. WEST S. WEST | NORTH N. EAST | N. WEST EAST | S. EAST | N. WEST N. EAST EAST | SOUTH |
| SLOPE (%) | 37 | 46 | 33 | 36 | 45 | 22 |
| RADIATION INDEX | .447 | .350 | .426 | .540 | .411 | .474 |
| SURFACE ROCK(%) | 7 | 4 | 3 | 1 | 8 | 2 |
| **SOILS:** SOIL DEPTH (in) | 38 | 34 | 34 | 32 | 37 | 38 |
| AWC (in) | 3.7 | 3.4 | 3.6 | 2.6 | 4.0 | 5.3 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 5 | 6 | 7 | 5 | 8 | 5 |
| CO. FRAG. (%) | 37 | 40 | 35 | 38 | 27 | 20 |
| COLOR | dark brown, dark yellowish brown, dark reddish brown | dark yellowish brown, dark brown | dark brown, dark yellowish brown, dark grayish brown | dark brown, dark yellowish brown | dark brown, dark yellowish brown, reddish brown | reddish brown |
| TEXTURE | gl, vgl, l | gl, vgl, xgl | gl, vgl, xgl | vgl, xgl, gl | gl, sl, vgl, l, cl | gl |
| PARENT MATERIAL | phyllite schist greenstone sandstone | phyllite greenstone | schist phyllite | mixed | phyllite granite schist greenstone mafic | greenstone schist |
| SOIL FAMILY | Goldridge Clallam Bentpeak Josephine | Clallam Hugo | Hugo Bentpeak | Clallam | Clallam Goldridge Hugo Josephine | Goldridge |

Table 23. Comparison of stand structure variables by plant association in the tanoak-chinquapin sub-series, for stands ≥ 200 years old.

| | | PLANT ASSOCIATION | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2/RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| STAND AGE | 332 | 350 | 345 | 282 | 347 | 340 |
| NUMBER OF PLOTS | 11 | 17 | 8 | 3 | 27 | 2 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 11197 | 10139 | 8802 | 8164 | 7820 | 5293 |
| BASAL AREA ($ft^2$) | 277 | 250 | 228 | 196 | 192 | 167 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 986 | 815 | 469 | 1263 | 1401 | 890 |
| BASAL AREA ($ft^2$) | 65 | 65 | 31 | 76 | 82 | 66 |
| SITE CLASS | 1A-1 | 1A-2 | 1A-2 | 1A-1 | 1A-1 | 2 |
| SITE INDEX | 175-200 | 150-200 | 150-200 | 175-200 | 175-200 | 150 |
| STAND DENSITY INDEX | 514 | 492 | 374 | 407 | 427 | 448 |

Table 24. Comparison of vegetation variables by plant association in the tanoak-chinquapin sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2/RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 97 | 99 | 96 | 96 | 93 | 97 |
| GRASS COVER | <1 | 0 | 0 | <1 | <1 | 0 |
| FORB COVER | 4 | 3 | 23 | 8 | 12 | 5 |
| SHRUB COVER | 62 | 86 | 37 | 3 | 17 | 54 |
| TREE COVER | 90 | 85 | 78 | 94 | 86 | 90 |
| **TREE OVERSTORY (% COVER)(CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 49 (100) | 51 (100) | 42 (100) | 39 (100) | 43 (100) | 36 (100) |
| TANOAK | 36 (100) | 26 (100) | 11 (100) | 28 (100) | 35 (100) | 29 (100) |
| PACIFIC MADRONE | 6 (70) | 8 (47) | 5 (50) | 11 (75) | 9 (52) | 4 (50) |
| CHINQUAPIN | 18 (100) | 21 (100) | 23 (100) | 29 (100) | 9 (100) | 18 (100) |
| CANYON LIVE OAK | 4 (14) | 1 (9) | 8 (25) | | 4 (8) | 1 (50) |
| SUGAR PINE | 11 (35) | 5 (28) | 18 (50) | 17 (60) | 7 (23) | 27 (75) |
| PACIFIC DOGWOOD | 4 (30) | 4 (28) | | 4 (20) | 7 (32) | 1 (25) |
| BIGLEAF MAPLE | 6 (20) | 2 (9) | | | 3 (2) | |
| BLACK OAK | | | | | 6 (21) | |
| PACIFIC YEW | 3 (5) | 2 (14) | 1 (8) | | 2 (5) | |
| INCENSE CEDAR | 2 (5) | 1 (4) | 5 (8) | | 1 (5) | |
| CALIFORNIA BAY | | | | | | |
| PORT-ORFORD CEDAR | 5 (10) | 2 (4) | | | | 8 (25) |
| WHITE FIR | | 1 (14) | 1 (8) | | | |
| KNOBCONE PINE | | 5 (4) | 4 (25) | | 2 (2) | |
| ALDER | 20 (5) | 2 (4) | | | | |
| PONDEROSA PINE | | | | | | |
| JEFFREY PINE | 4 (5) | | | | | |

Table 24. Comparison of vegetation variables by plant association in the tanoak-chinquapin sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2/RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | |
| TANOAK | 13 (100) | 17 (90) | 7 (91) | 6 (100) | 26 (100) | 7 (100) |
| DOUGLAS-FIR | 1 (95) | 2 (61) | 3 (83) | 2 (100) | 2 (67) | 1 (100) |
| CANYON LIVE OAK | 3 (35) | 2 (14) | 1 (25) | 1 (20) | 2 (20) | 1 (25) |
| SUGAR PINE | 1 (25) | 1 (9) | 1 (41) | 1 (60) | 1 (29) | 1 (25) |
| CHINQUAPIN | 7 (35) | 5 (57) | 5 (83) | 4 (100) | 8 (47) | 3 (100) |
| PACIFIC DOGWOOD | 2 (14) | 1 (4) | | 5 (20) | 2 (35) | 1 (25) |
| PACIFIC YEW | 2 (10) | 1 (19) | 1 (16) | | 1 (8) | 1 (25) |
| CALIFORNIA BAY | 2 (10) | | | | | |
| PACIFIC MADRONE | 1 (10) | 1 (23) | | | 1 (5) | 1 (25) |
| INCENSE CEDAR | | 1 (4) | | | 3 (14) | |
| WHITE FIR | | 1 (14) | 1 (8) | 1 (20) | 1 (8) | |
| BLACK OAK | | | | | 1 (11) | |
| BIGLEAF MAPLE | 1 (5) | | | | 1 (2) | |
| PORT-ORFORD CEDAR | 1 (95) | 1 (4) | 1 (8) | | | 3 (25) |
| ALDER | 2 (5) | | | | | |
| CASCARA | | | | | | |
| PONDEROSA PINE | | | | | | |

Table 24. Comparison of vegetation variables by plant association in the tanoak-chinquapin sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2-RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | |
| DWARF OREGON-GRAPE | 7 (80) | 6 (95) | 4 (25) | | 10 (100) | |
| POISON OAK | 1 (14) | | | | 4 (20) | 2 (50) |
| SALAL | 56 (100) | 68 (100) | 12 (33) | | 1 (2) | 15 (75) |
| TRAILING BLACKBERRY | 1 (20) | 1 (14) | 2 (16) | 1 (40) | 1 (29) | 1 (25) |
| HAIRY HONEYSUCKLE | 1 (5) | | | | 1 (17) | |
| WILD ROSE | 1 (30) | 2 (19) | 1 (32) | 1 (40) | 1 (64) | 1 (25) |
| HAZELNUT | 1 (10) | | | | 3 (23) | |
| CREEPING SNOWBERRY | | | 1 (25) | 1 (40) | 1 (38) | |
| EVERGREEN HUCKLEBERRY | 6 (30) | 10 (42) | | | 1 (2) | 38 (100) |
| RED HUCKLEBERRY | 1 (20) | 2 (28) | 5 (83) | 2 (40) | 4 (20) | 8 (25) |
| RHODODENDRON | 1 (10) | 32 (100) | 23 (100) | | | 3 (75) |
| VINE MAPLE | | 8 (9) | 1 (16) | 5 (20) | 3 (5) | |
| OCEANSPRAY | | | | | 2 (11) | |
| HUCKLEBERRY OAK | 1 (5) | | 13 (25) | 2 (20) | | |
| OREGON BOXWOOD | | | 2 (25) | | 2 (5) | |
| SADLER OAK | 1 (5) | | 4 (66) | 1 (20) | | |
| THIMBLEBERRY | | | | | 1 (2) | |
| STREAMSIDE SNOWBERRY | 3 (5) | | | 1 (20) | | |
| DEERBRUSH | | | | | 1 (2) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| BLACK CAP | 1 (5) | | | | | |
| TALL OREGON-GRAPE | | | | | | |
| PYGMY HOLLY-GRAPE | | | | | | |
| SERVICEBERRY | | | 1 (16) | | 2 (2) | |
| CREEPING OREGON-GRAPE | | | 1 (8) | | 1 (5) | |
| SLENDER SALAL | | | 4 (33) | | 2 (2) | 5 (25) |
| WHITELEAF MANZANITA | | | 1 (8) | | 1 (2) | |
| PINEMAT MANZANITA | | | 4 (16) | | | 2 (25) |
| GREENLEAF MANZANITA | | | 1 (8) | | | 1 (25) |
| SNOWBRUSH | 1 (5) | | 5 (8) | | 10 (2) | |
| COFFEEBERRY | | | | | | |
| WESTERN AZALEA | | | 20 (8) | | | |
| GOOSEBERRY | | | | | | |
| HOARY MANZANITA | | | | | | |
| DWARF TANBARK | | | | | | |

Table 24. Comparison of vegetation variables by plant association in the tanoak-chinquapin sub-series (continued).

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | LIDE2-CACH2/GASH | LIDE2-CACH2/RHMA-GASH | LIDE2-CACH2/RHMA/XETE | LIDE2-CACH2/PTAQL | LIDE2-CACH2/BENE1 | LIDE2-CACH2/VAOV-GASH |
| HERBS & GRASSES (% COVER) (CONSTANCY) | | | | | | |
| BRACKENFERN | 1 (70) | 1 (66) | 2 (91) | 1 (100) | 1 (61) | 1 (75) |
| LITTLE PRINCE'S PINE | 1 (35) | 1 (19) | 5 (16) | 1 (80) | 2 (52) | 1 (50) |
| SWORDFERN | 1 (50) | 2 (57) | | | 1 (29) | |
| RATTLESNAKE PLANTAIN | 1 (55) | 1 (47) | 1 (33) | 1 (40) | 1 (44) | 1 (50) |
| WESTERN MODESTY | 13 (10) | | 1 (16) | 2 (40) | 4 (41) | |
| PRINCE'S PINE | 2 (40) | 1 (23) | 2 (66) | 6 (80) | 5 (50) | 1 (25) |
| VANILLA LEAF | 1 (30) | 1 (23) | 1 (8) | 1 (20) | 5 (58) | |
| WHITE-VEINED WINTERGREEN | 1 (10) | 1 (14) | 1 (25) | 1 (80) | 1 (52) | |
| HOOKER'S FAIRYBELL | 1 (5) | | | 1 (20) | 1 (50) | |
| STARFLOWER | 1 (14) | | 1 (8) | 1 (20) | 1 (26) | |
| WHITE INSIDE-OUT FLOWER | 1 (14) | | 2 (58) | 1 (60) | 2 (32) | |
| IRIS | | 1 (4) | 1 (8) | 1 (60) | 1 (20) | 1 (25) |
| BEARGRASS | 1 (40) | 1 (61) | 15 (100) | 2 (80) | 10 (11) | 4 (75) |
| RAYLESS ARNICA | 1 (5) | | 1 (8) | 1 (20) | 1 (11) | |
| REDWOOD VIOLET | 1 (25) | 1 (14) | 2 (16) | 1 (20) | 1 (14) | 1 (25) |
| HAWKWEED | | | | | 1 (2) | |
| TWINFLOWER | 4 (5) | | 3 (50) | 1 (20) | 6 (20) | |
| TRAILPLANT | 1 (5) | | | | 2 (5) | |
| SMALL INSIDE-OUT FLOWER | 1 (20) | 1 (4) | | | 1 (5) | 1 (75) |
| MOUNTAIN DOGBANE | | | | 1 (20) | 1 (11) | |
| FALSE SOLOMON'S SEAL | | | | | 1 (8) | |
| WHITE TRILLIUM | 1 (5) | 1 (4) | 1 (8) | | 1 (2) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SMALL BEDSTRAW | 1 (5) | | | | 1 (8) | |
| CALIFORNIA HAREBELL | | | | | 1 (2) | |
| STREAM VIOLET | 1 (7) | | | | 1 (14) | |
| GROUND CONE | | | | | | |
| SLENDER-TUBED IRIS | | | | | 1 (5) | |
| SPOTTED CORALROOT | | | | | 1 (2) | 1 (25) |
| LEAFLESS WINTERGREEN | | | | | 1 (6) | |
| REDWOOD SORREL | | | | | | |
| DOGBANE | | | 1 (8) | | | |
| STRIPED CORALROOT | 1 (5) | 1 (4) | | | | |
| CALIFORNIA TOOTHWORT | | | | | 1 (2) | |
| OREGON TRILLIUM | | | | | | |
| PINE VIOLET | | | | | 1 (2) | |
| CORALROOT | 1 (5) | | 1 (8) | | | |
| TOOTHED WINTERGREEN | 1 (5) | 1 (4) | 1 (8) | | | |
| CANDYSTICK | | | | 1 (20) | | |
| BEDSTRAW | 1 (10) | | | | 1 (4) | |
| LILY | 1 (5) | 1 (4) | 1 (8) | | 1 (2) | |
| FAIRY SLIPPER | | | | | | |
| LICORICE FERN | | | | | | |
| IMBRICATE SWORDFERN | | | | | | |
| SOLOMON'S SEAL | | | | | 1 (2) | |
| SPREADING DOGBANE | | | | | 1 (2) | |
| OBSCURE BEDSTRAW | | | | | | |
| KELLOGIA | | | | | | |
| WOODLAND PHLOX | | | 1 (8) | | 1 (5) | |
| WESTERN SOLOMON'S SEAL | | | | | | |
| SCOULER'S HAREBELL | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| VARIED-LEAVED COLLOMIA | | | | | | |
| FAIRYBELL | | | | | | |
| PHANTOM ORCHID | | | | | | |
| ELEGANT BOG ORCHID | | | | | | |
| ALASKA BOG ORCHID | | | | | | |
| GNOME PLANT | 1 (5) | | | | 1 (2) | |
| PEAVINE | | | | | | |
| WASHINGTON LILY | | | | | 1 (2) | |
| WOODLAND TARWEED | | | | | | |
| PINE-FOOT | | | | | | 1 (25) |
| CALIFORNIA LICORICE FERN | | | | | | |
| PINEDROPS | 1 (5) | | | | 1 (2) | |
| AMERICAN VETCH | | | | | | |
| VETCH | | | | | | |
| ARNICA | | | | | | |
| MARBLED WILD GINGER | | | | | 1 (2) | |
| WESTERN CORALROOT | 1 (10) | 1 (4) | | | 1 (2) | |
| PACIFIC HOUND'S-TONGUE | | | | | | |
| CATCHWEED BEDSTRAW | | | | | | |
| LUPINE | | | 4 (8) | | 1 (5) | |
| VIOLET | | | | | 1 (2) | |
| WESTERN FESCUE | | | | 1 (20) | 1 (5) | |
| CALIFORNIA FESCUE | | | | | 1 (2) | |
| FESCUE | 1 (5) | 1 (4) | | | 1 (2) | |
| BROME | | | | | | |
| IDAHO FESCUE | | | | | 1 (2) | |
| CALIFORNIA SWEETGRASS | | | | | | |

Table 1. Environment and timber summary for the tanoak-evergreen huckleberry type (LIDE2-VAOV) N=30.

| RANGER DISTRICT | GASQUET, UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1657 | 820 | 2100 | 64 |
| SLOPE (%) | 38 | 20 | 75 | 3 |
| ASPECT | N. WEST<br>S. EAST | | | |
| SOLAR RADIATION INDEX * | .459 | .354 | .562 | .015 |
| SURFACE ROCK | 4 | 0 | 6 | 2 |
| STAND AGE | 283 | 81 | 600 | 26 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6821 | 2038 | 11510 | 587 |
| BASAL AREA ($ft^2$) | 168 | 80 | 267 | 14 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1751 | 464 | 3124 | 200 |
| BASAL AREA ($ft^2$) | 109 | 50 | 160 | 10 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 459 | 312 | 556 | 26 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 2. Soils summary for the tanoak-evergreen huckleberry type (LIDE2-VAOV) N=30.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 22 | >40 |
| AWC (inches) | 4.2 | 1.8 | 6.0 |
| PARENT ROCK | phyllite<br>mafic<br>greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 11 |
| COARSE FRAGMENT (%) | 36 | 10 | 65 |
| pH | 5.9 | 5.3 | 6.8 |
| COLOR | dark brown, dark yellowish brown, dark reddish brown | | |
| TEXTURE | vgl, gl, xgl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 32 | 10 | 51 |
| pH | 6.0 | 5.5 | 6.1 |
| COLOR | dark yellowish brown, dark brown, strong brown, yellowish red | | |
| TEXTURE | gl, cl, gcl, vgl, l, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 3. Vegetation summary for the tanoak-evergreen huckleberry type (LIDE2-VAOV) N=30.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 88 | 99 | 2 |
| GRASS COVER | <1 | 0 | 1 | 0 |
| HERB COVER | 2 | 1 | 5 | <1 |
| SHRUB COVER | 55 | 12 | 99 | 6 |
| TREE COVER | 88 | 60 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 40 | 100 |
| TANOAK (LIDE2) | 61 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 76 |
| PACIFIC DOGWOOD (CONU2) | 3 | 40 |
| SUGAR PINE (PILA) | 13 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 10 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 73 |
| SUGAR PINE (PILA) | 1 | 26 |
| PACIFIC MADRONE (ARME3) | 2 | 26 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 3 | 36 |
| POISON OAK (RHDI) | 1 | 56 |
| SALAL (GASH) | 3 | 63 |
| TRAILING BLACKBERRY (RUUR) | 1 | 26 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 30 |
| EVERGREEN HUCKLEBERRY (VAOV) | 52 | 100 |
| **HERBS & GRASSES** | | |
| BRAKENFERN (PTAQL) | 1 | 70 |
| LITTLE PRINCE'S PINE (CHME2) | 2 | 43 |
| SWORDFERN (POMU1) | 2 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 43 |
| WESTERN MODESTY (WHMO) | 1 | 43 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 26 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 1 | 23 |

000002

Table 4. Environment and timber summary for the tanoak/evergreen huckleberry-salal type (LIDE2/VAOV-GASH) N=25.

| RANGER DISTRICT | GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1633 | 830 | 2250 | 95 |
| SLOPE (%) | 47 | 20 | 75 | 4 |
| ASPECT | WEST<br>N. EAST | | | |
| SOLAR RADIATION INDEX * | .444 | .223 | .582 | .024 |
| SURFACE ROCK | 4 | 0 | 7 | 3 |
| STAND AGE | 253 | 5 | 480 | 23 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8372 | 4806 | 11654 | 592 |
| BASAL AREA ($ft^2$) | 216 | 107 | 293 | 12 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1469 | 289 | 2921 | 252 |
| BASAL AREA ($ft^2$) | 83 | 27 | 160 | 71 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 456 | 280 | 601 | 26 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 5. Soils summary for the tanoak-evergreen huckleberry-salal type (LIDE2-VAOV-GASH) N=25.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 23 | >40 |
| AWC (inches) | 3.6 | 1.8 | 5.5 |
| PARENT ROCK | phyllite<br>schist<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 7 |
| COARSE FRAGMENT (%) | 46 | 20 | 70 |
| pH | 6.1 | 5.1 | 7.1 |
| COLOR | dark brown, black, dark yellowish brown | | |
| TEXTURE | gl, xgl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 34 | 20 | 50 |
| pH | 6.1 | 5.4 | 6.8 |
| COLOR | dark yellowish brown, strong brown, yellowish red | | |
| TEXTURE | gcl, vgl, gl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 6. Vegetation summary for the tanoak-evergreen huckleberry-salal type (LIDE2-VAOV-GASH) N=25.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 80 | 99 | 2 |
| GRASS COVER | <1 | 0 | 3 | <1 |
| HERB COVER | 4 | 1 | 8 | 2 |
| SHRUB COVER | 57 | 20 | 90 | 6 |
| TREE COVER | 93 | 80 | 98 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 51 | 92 |
| TANOAK (LIDE2) | 42 | 96 |
| PACIFIC MADRONE (ARME3) | 9 | 52 |
| CHINQUAPIN (CACH2) | 7 | 16 |
| SUGAR PINE (PILA) | 14 | 16 |
| PACIFIC DOGWOOD (CONU2) | 10 | 24 |
| CALIFORNIA BAY (UMCA1) | 8 | 36 |
| BIGLEAF MAPLE (ACMA) | 9 | 32 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 12 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 68 |
| SUGAR PINE (PILA) | 1 | 24 |
| PACIFIC DOGWOOD (CONU2) | 2 | 36 |
| INCENSE CEDAR (LIDE3) | 2 | 20 |
| PACIFIC YEW (TABR) | 2 | 24 |
| CALIFORNIA BAY (UMCA1) | 4 | 40 |
| PORT-ORFORD CEDAR (CHLA) | 1 | 12 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 2 | 64 |
| POISON OAK (RHDI) | 2 | 60 |
| SALAL (GASH) | 22 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 40 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 40 |
| WILD ROSE (ROS) | 1 | 40 |
| HAZELNUT (COCOC) | 3 | 56 |
| EVERGREEN HUCKLEBERRY (VAOV) | 36 | 100 |
| RHODODENDRON (RHMA) | 4 | 20 |
| BLACK CAP (RULE) | 2 | 20 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRAKENFERN (PTAQL) | 1 | 52 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 24 |
| SWORDFERN (POMU1) | 6 | 76 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 28 |
| WESTERN MODESTY (WHMO) | 1 | 44 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 24 |
| VANILLA LEAF (ACTR) | 1 | 28 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 28 |
| STARFLOWER (TRLA3) | 1 | 24 |
| BEARGRASS (XETE) | 2 | 20 |
| TWINFLOWER (LIBOL) | 3 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 24 |
| TRAILPLANT (ADBI) | 1 | 20 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 36 |
| REDWOOD SORREL (OXOR) | 3 | 24 |
| CALIFORNIA SWEETGRASS (HIOC) | 2 | 20 |

Table 7. Environment and timber summary for the tanoak/ rhododendron-evergreen huckleberry type (LIDE2/RHMA-VAOV) N=10.

| RANGER DISTRICT | GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1372 | 670 | 1910 | 128 |
| SLOPE (%) | 53 | 40 | 75 | 5 |
| ASPECT | NORTH | | | |
| SOLAR RADIATION INDEX * | .348 | .256 | .406 | .027 |
| SURFACE ROCK | 2 | 0 | 4 | 1 |
| STAND AGE | 297 | 85 | 480 | 47 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6371 | 2741 | 7339 | 789 |
| BASAL AREA ($ft^2$) | 162 | 93 | 213 | 20 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1347 | 464 | 2140 | 302 |
| BASAL AREA ($ft^2$) | 82 | 40 | 147 | 15 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 377 | 246 | 432 | 32 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 8. Soils summary for the tanoak/rhododendron-evergreen huckleberry type (LIDE2/RHMA-VAOV) N=10.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 27 | >40 |
| AWC (inches) | 3.3 | 2.1 | 3.8 |
| PARENT ROCK | phyllite greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 11 |
| COARSE FRAGMENT (%) | 52 | 5 | 73 |
| pH | 6.0 | 5.3 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | xgl, gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 40 | 20 | 48 |
| pH | 5.9 | 5.3 | 6.4 |
| COLOR | strong brown, yellowish red, yellowish brown | | |
| TEXTURE | xgl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 9. Vegetation summary for the tanoak/rhododendron-evergreen huckleberry type (LIDE2/RHMA-VAOV) N=10.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 3 | 0 | 10 | 5 |
| SHRUB COVER | 75 | 40 | 90 | 6 |
| TREE COVER | 91 | 85 | 95 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 48 | 100 |
| TANOAK (LIDE2) | 52 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 70 |
| CHINQUAPIN (CACH2) | 4 | 60 |
| CANYON LIVE OAK (QUCH2) | 2 | 30 |
| PACIFIC DOGWOOD (CONU2) | 5 | 30 |
| SUGAR PINE (PILA) | 10 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 9 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 60 |
| CANYON LIVE OAK (QUCH2) | 1 | 30 |
| CHINQUAPIN (CACH2) | 2 | 60 |
| PACIFIC DOGWOOD (CONU2) | 2 | 30 |
| PACIFIC YEW (TABR) | 1 | 30 |
| PACIFIC MADRONE (ARME3) | 1 | 20 |
| CASCARA (RHPU) | 2 | 20 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 1 | 30 |
| POISON OAK (RHDI) | 9 | 40 |
| SALAL (GASH) | 15 | 100 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 20 |
| WILD ROSE (ROS) | 1 | 30 |
| EVERGREEN HUCKLEBERRY (VAOV) | 52 | 100 |
| RED HUCKLEBERRY (VAPA) | 1 | 20 |
| RHODODENDRON (RHMA) | 18 | 100 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 40 |
| SWORDFERN (POMU1) | 5 | 100 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| WESTERN MODESTY (WHMO) | 1 | 20 |
| BEARGRASS (XETE) | 2 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 30 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 1 | 30 |
| REDWOOD SORREL (OXOR1) | 7 | 30 |

Table 10. Environment and timber summary for the tanoak/ rhododendron-salal type (LIDE2/RHMA-GASH) N=13.

| RANGER DISTRICT | GASQUET, ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2720 | 1880 | 3560 | 237 |
| SLOPE (%) | 58 | 35 | 80 | 5 |
| ASPECT | N. WEST | | | |
| SOLAR RADIATION INDEX * | .405 | .223 | .460 | .055 |
| SURFACE ROCK | 11 | 0 | 22 | 4 |
| STAND AGE | 295 | 150 | 433 | 25 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11744 | 9069 | 13865 | 1210 |
| BASAL AREA ($ft^2$) | 301 | 240 | 413 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 590 | 155 | 1049 | 188 |
| BASAL AREA ($ft^2$) | 37 | 13 | 120 | 11 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 474 | 325 | 565 | 34 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 11. Soils summary for the tanoak/rhododendron-salal type (LIDE2/RHMA-GASH ) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 39 | 25 | >40 |
| AWC (inches) | 4.0 | 2.1 | 5.2 |
| PARENT ROCK | phyllite schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 9 |
| COARSE FRAGMENT (%) | 38 | 25 | 65 |
| pH | 5.9 | 5.1 | 6.5 |
| COLOR | dark brown | | |
| TEXTURE | gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 43 | 22 | 75 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | yellowish red, dark yellowish brown, light olive brown | | |
| TEXTURE | gl, vgl, xkl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 12. Vegetation summary for the tanoak/rhododendron-salal type (LIDE2/RHMA-GASH) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 90 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 5 | 2 | 8 | 8 |
| SHRUB COVER | 68 | 40 | 95 | 7 |
| TREE COVER | 84 | 60 | 98 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 60 | 100 |
| TANOAK (LIDE2) | 28 | 92 |
| PACIFIC MADRONE (ARME3) | 3 | 38 |
| CANYON LIVE OAK (QUCH2) | 4 | 23 |
| PACIFIC DOGWOOD (CONU2) | 7 | 53 |
| BIGLEAF MAPLE (ACMA) | 7 | 53 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 13 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 69 |
| CANYON LIVE OAK (QUCH2) | 2 | 46 |
| PACIFIC DOGWOOD (CONU2) | 3 | 23 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 9 | 92 |
| SALAL (GASH) | 37 | 100 |
| EVERGREEN HUCKLEBERRY (VAOV) | 38 | 23 |
| TRAILING BLACKBERRY (RUUR) | 1 | 30 |
| WILD ROSE (ROS) | 2 | 61 |
| HAZELNUT (COCOC) | 3 | 23 |
| RED HUCKLEBERRY (VAPA) | 4 | 38 |
| RHODODENDRON (RHMA) | 23 | 84 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 2 | 46 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 38 |
| SWORDFERN (POMU1) | 7 | 84 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 53 |
| WESTERN MODESTY (WHMO) | 1 | 38 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 46 |
| VANILLA LEAF (ACTR) | 5 | 69 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 23 |
| BEARGRASS (XETE) | 1 | 30 |
| REDWOOD VIOLET (VISE) | 1 | 69 |
| TWINFLOWER (LIBOL) | 4 | 23 |
| WHITE TRILLIUM (TROV2) | 1 | 23 |

Table 13. Environment and timber summary for the tanoak/dwarf Oregon-grape/Hooker's fairybell type (LIDE2/BENE1/DIHO2) N=2.

| RANGER DISTRICT | HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2755 | 2710 | 2800 | 45 |
| SLOPE (%) | 43 | 30 | 56 | 13 |
| ASPECT | EAST | | | |
| SOLAR RADIATION INDEX * | .447 | .433 | .462 | 0.1 |
| SURFACE ROCK | <1 | 0 | 1 | 1 |
| STAND AGE | 381 | 346 | 417 | 35 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8177 | 7041 | 9312 | 1136 |
| BASAL AREA ($ft^2$) | 186 | 160 | 213 | 26 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1403 | 895 | 1911 | 508 |
| BASAL AREA ($ft^2$) | 80 | 67 | 93 | 13 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 380 | 347 | 413 | 33 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 14. Soils summary for the tanoak/dwarf Oregon-grape/Hooker's fairybell (LIDE2/BENE1/DIHO2) N=2.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 41 | 41 | >40 |
| AWC (inches) | 6.0 | 5.3 | 6.8 |
| PARENT ROCK | mafic schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 5 | 12 |
| COARSE FRAGMENT (%) | 15 | 10 | 20 |
| pH | 6.1 | 5.8 | 6.4 |
| COLOR | dark brown | | |
| TEXTURE | cl, sil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 10 | 10 | 10 |
| pH | 6.1 | 6.0 | 6.2 |
| COLOR | yellowish red, strong brown | | |
| TEXTURE | gl, vgl, gscl, c, sicl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 15. Vegetation summary for the tanoak/dwarf Oregon-grape/Hooker's fairybell (LIDE2/BENE1/DIHO2) N=2.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 95 | 99 | 2 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 9 | 2 | 15 | 6 |
| SHRUB COVER | 13 | 5 | 21 | 8 |
| TREE COVER | 92 | 88 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 40 | 100 |
| TANOAK (LIDE2) | 48 | 100 |
| PACIFIC MADRONE (ARME3) | 10 | 50 |
| WHITE FIR (ABCO) | 15 | 100 |
| CHINQUAPIN (CACH2) | 4 | 100 |
| PACIFIC YEW (TABR) | 10 | 50 |
| PACIFIC DOGWOOD (CONU2) | 2 | 50 |
| BIGLEAF MAPLE (ACMA) | 1 | 50 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 50 |
| WHITE FIR (ABCO)(QUCH2) | 3 | 100 |
| PACIFIC DOGWOOD (CONU2) | 1 | 50 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 12 | 100 |
| POISON OAK (RHDI) | 1 | 50 |
| WILD ROSE (ROS) | 1 | 100 |
| RED HUCKLEBERRY (VAPA) | 12 | 50 |
| CREEPING SNOWBERRY (SYMO) | 12 | 100 |
| BLACK CAP (RULE) | 12 | 50 |
| VINE MAPLE (ACCI) | 1 | 50 |
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 4 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| TWINFLOWER (LIBOL) | 2 | 50 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 50 |
| VANILLA LEAF (ACTR) | 2 | 100 |
| WESTERN MODESTY (WHMO) | 3 | 100 |
| IRIS (IRI) | 1 | 50 |
| SWORDFERN (POMU1) | 1 | 50 |
| THREE-LEAVED ANEMONE (ANDE) | 1 | 50 |
| VIOLET (VIO) | 1 | 50 |
| WESTERN FESCUE (FEOC1) | 1 | 50 |

Table 16. Environment and timber summary for the tanoak/salal type (LIDE2/GASH) N=17.

| RANGER DISTRICT | GASQUET, ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2320 | 1625 | 3100 | 107 |
| SLOPE (%) | 62 | 40 | 85 | 4 |
| ASPECT | NORTH WEST | | | |
| SOLAR RADIATION INDEX * | .367 | .218 | .473 | .030 |
| SURFACE ROCK | 6 | 1 | 8 | 3 |
| STAND AGE | 249 | 81 | 370 | 20 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11416 | 7292 | 16662 | 1018 |
| BASAL AREA ($ft^2$) | 279 | 173 | 373 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 547 | 309 | 1452 | 209 |
| BASAL AREA ($ft^2$) | 42 | 73 | 107 | 10 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 474 | 300 | 603 | 30 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 17. Soils summary for the tanoak/salal type (LIDE2/GASH) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 20 | >40 |
| AWC (inches) | 2.9 | 1.0 | 3.9 |
| PARENT ROCK | phyllite<br>schist<br>sandstone<br>mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 3 | 9 |
| COARSE FRAGMENT (%) | 47 | 32 | 70 |
| pH | 5.9 | 5.3 | 6.5 |
| COLOR | dark brown, very dark grayish brown, dark yellowish brown | | |
| TEXTURE | vgl, vgsl, xgl, xgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 22 | 65 |
| pH | 6.1 | 5.5 | 6.6 |
| COLOR | dark brown, dark yellowish brown, yellowish brown | | |
| TEXTURE | vgl, gl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 18. Vegetation summary for the tanoak/salal type (LIDE2/GASH) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | 0 |
| HERB COVER | 7 | 1 | 15 | 1 |
| SHRUB COVER | 68 | 50 | 97 | 7 |
| TREE COVER | 90 | 80 | 95 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 55 | 100 |
| TANOAK (LIDE2) | 43 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 88 |
| CHINQUAPIN (CACH2) | 5 | 29 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 27 | 94 |
| DOUGLAS-FIR (PSME) | 3 | 70 |
| CANYON LIVE OAK (QUCH2) | 1 | 41 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 4 | 70 |
| POISON OAK (RHDI) | 2 | 58 |
| SALAL (GASH) | 62 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 47 |
| WILD ROSE (ROS) | 1 | 57 |
| EVERGREEN HUCKLEBERRY (VAOV) | 6 | 64 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 58 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 58 |
| SWORDFERN (POMU1) | 3 | 76 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 70 |
| WESTERN MODESTY (WHMO) | 2 | 41 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 41 |
| VANILLA LEAF (ACTR) | 1 | 58 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 23 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 35 |
| REDWOOD VIOLET (VISE) | 1 | 35 |

Table 19. Environment and timber summary for the tanoak/hazelnut type (LIDE2/COCOC) N=7.

| RANGER DISTRICT | UKONOM, ORLEANS, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1829 | 710 | 3740 | 489 |
| SLOPE (%) | 44 | 26 | 54 | 5 |
| ASPECT | NORTH<br>S.WEST** | | | |
| SOLAR RADIATION INDEX * | .360 | .301 | .505 | .040 |
| SURFACE ROCK | 3 | 0 | 6 | 3 |
| STAND AGE | 244 | 110 | 383 | 35 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 4123 | 2277 | 7813 | 1420 |
| BASAL AREA ($ft^2$) | 98 | 70 | 173 | 32 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 3284 | 2060 | 4426 | 436 |
| BASAL AREA ($ft^2$) | 132 | 107 | 160 | 14 |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 381 | 335 | 446 | 34 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**Topographic shading on southern aspects contributes to a cool/moist environment.

Table 20. Soils summary for the tanoak/hazelnut type (LIDE2/COCOC) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | >40 | 40 | >40 |
| AWC (inches) | 3.7 | 2.4 | 5.6 |
| PARENT ROCK | phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 14 |
| COARSE FRAGMENT (%) | 30 | 18 | 35 |
| pH | 6.1 | 5.7 | 6.2 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 32 | 20 | 49 |
| pH | 6.0 | 5.8 | 6.1 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, gcl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 21. Vegetation summary for the tanoak/hazelnut type (LIDE2/COCOC) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 80 | 98 | 3 |
| GRASS COVER | <1 | 0 | 4 | 1 |
| HERB COVER | 8 | 3 | 15 | 4 |
| SHRUB COVER | 17 | 8 | 35 | 5 |
| TREE COVER | 83 | 70 | 98 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 38 | 100 |
| TANOAK (LIDE2) | 45 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 100 |
| CANYON LIVE OAK (QUCH2) | 3 | 28 |
| SUGAR PINE (PILA) | 3 | 28 |
| PACIFIC DOGWOOD (CONU2) | 4 | 42 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 38 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 85 |
| CANYON LIVE OAK (QUCH2) | 2 | 28 |
| SUGAR PINE (PILA) | 1 | 28 |
| PACIFIC DOGWOOD (CONU2) | 3 | 42 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 4 | 42 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 57 |
| WILD ROSE (ROS) | 1 | 56 |
| HAZELNUT (COCOC) | 3 | 100 |
| CREEPING SNOWBERRY (SYMO) | 2 | 42 |
| OCEANSPRAY (HODI) | 2 | 28 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 2 | 57 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 71 |
| SWORDFERN (POMU1) | 1 | 57 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 42 |
| WESTERN MODESTY (WHMO) | 12 | 42 |
| VANILLA LEAF (ACTR) | 2 | 71 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 42 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 71 |
| STARFLOWER (TRLA3) | 1 | 28 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 28 |
| TRAILPLANT (ADBI) | 1 | 42 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 28 |
| SLENDER-TUBED IRIS (IRCH) | 1 | 28 |
| CALIFORNIA TOOTHWORT (DECA4) | 1 | 57 |
| ELEGANT BOG ORCHID (HAEL) | 1 | 28 |

Table 22. Environment and timber summary for the tanoak/dwarf Oregon-grape-salal type (LIDE2/BENE1-GASH) N=20.

| RANGER DISTRICT | GASQUET, ORLEANS, UKONOM, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2660 | 1870 | 3380 | 123 |
| SLOPE (%) | 53 | 33 | 75 | 5 |
| ASPECT | N. WEST<br>N. EAST | | | |
| SOLAR RADIATION INDEX * | .400 | .298 | .548 | .021 |
| SURFACE ROCK | 10 | 1 | 22 | 4 |
| STAND AGE | 242 | 23 | 432 | 25 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8747 | 5460 | 9399 | 1035 |
| BASAL AREA ($ft^2$) | 217 | 133 | 320 | 21 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1566 | 552 | 3660 | 334 |
| BASAL AREA ($ft^2$) | 80 | 40 | 147 | 15 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 431 | 249 | 586 | 40 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 23. Soils summary for the tanoak/dwarf Oregon-grape-salal type (LIDE2/BENE1-GASH) N=20.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 21 | >40 |
| AWC (inches) | 3.6 | 1.3 | 5.7 |
| PARENT ROCK | phyllite<br>schist<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 2 | 9 |
| COARSE FRAGMENT (%) | 34 | 10 | 51 |
| pH | 5.4 | 4.8 | 6.5 |
| COLOR | dark brown, dark yellowish brown, dark grayish brown | | |
| TEXTURE | gl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 16 | 65 |
| pH | 5.9 | 5.4 | 6.5 |
| COLOR | yellowish brown, strong brown, dark brown, yellowish red | | |
| TEXTURE | gl, gcl, vgl, cl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 24. Vegetation summary for the tanoak/dwarf Oregon-grape-salal type (LIDE2/BENE1-GASH) N=20.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 90 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 5 | 1 | 8 | 1 |
| SHRUB COVER | 37 | 14 | 95 | 6 |
| TREE COVER | 91 | 70 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 54 | 100 |
| TANOAK (LIDE2) | 41 | 90 |
| PACIFIC MADRONE (ARME3) | 8 | 65 |
| CHINQUAPIN (CACH2) | 11 | 50 |
| PACIFIC DOGWOOD (CONU2) | 4 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 26 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 50 |
| SUGAR PINE (PILA) | 1 | 20 |
| CHINQUAPIN (CACH2) | 4 | 50 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 15 | 95 |
| SALAL (GASH) | 19 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 40 |
| WILD ROSE (ROS) | 1 | 64 |
| HAZELNUT (COCOC) | 2 | 25 |
| RED HUCKLEBERRY (VAPA) | 1 | 20 |
| RHODODENDRON (RHMA) | 1 | 20 |
| OCEANSPRAY (HODI) | 1 | 25 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 60 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 55 |
| SWORDFERN (POMU1) | 2 | 60 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| WESTERN MODESTY (WHMO) | 1 | 40 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 55 |
| VANILLA LEAF (ACTR) | 1 | 40 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 30 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 35 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 50 |
| BEARGRASS (XETE) | 1 | 20 |
| REDWOOD VIOLET (VISE) | 2 | 20 |

Table 25. Environment and timber summary for the tanoak/poison oak-hairy honeysuckle type (LIDE2/RHDI-LOHIV) N=17.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1971 | 1140 | 2500 | 109 |
| SLOPE (%) | 47 | 22 | 70 | 6 |
| ASPECT | N. EAST<br>N. WEST | | | |
| SOLAR RADIATION INDEX * | .394 | .242 | .569 | .030 |
| SURFACE ROCK | 8 | 0 | 15 | 2 |
| STAND AGE | 239 | 94 | 380 | 20 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7286 | 3134 | 10134 | 792 |
| BASAL AREA ($ft^2$) | 170 | 80 | 267 | 17 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1852 | 1096 | 2853 | 205 |
| BASAL AREA ($ft^2$) | 101 | 40 | 180 | 13 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 420 | 280 | 546 | 25 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 26. Soils summary for the tanoak/poison oak-hairy honeysuckle type (LIDE2/RHDI-LOHIV) N=17.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 20 | >40 |
| AWC (inches) | 4.3 | 2.1 | 6.4 |
| PARENT ROCK | granite<br>gneiss<br>greenstone<br>phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 4 | 16 |
| COARSE FRAGMENT (%) | 29 | 15 | 35 |
| pH | 5.7 | 5.2 | 6.0 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | gl, sl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 30 | 15 | 40 |
| pH | 5.8 | 5.2 | 6.2 |
| COLOR | strong brown, dark yellowish brown, dark brown, yellowish brown, yellowish red | | |
| TEXTURE | cl, sl, gl, gcl, l | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 27. Vegetation summary for the tanoak/poison oak-hairy honeysuckle type (LIDE2/RHDI-LOHIV) N=17.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 85 | 95 | 1 |
| GRASS COVER | <1 | 0 | 4 | 0 |
| HERB COVER | 6 | 1 | 12 | 1 |
| SHRUB COVER | 15 | 1 | 50 | 4 |
| TREE COVER | 83 | 65 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 37 | 100 |
| TANOAK (LIDE2) | 44 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 76 |
| CHINQUAPIN (CACH2) | 11 | 23 |
| SUGAR PINE (PILA) | 20 | 23 |
| PACIFIC DOGWOOD (CONU2) | 3 | 35 |
| BLACK OAK (QUKE) | 4 | 29 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 23 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 58 |
| CANYON LIVE OAK (QUCH2) | 2 | 47 |
| SUGAR PINE (PILA) | 1 | 47 |
| PACIFIC DOGWOOD (CONU2) | 2 | 23 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 3 | 94 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 76 |
| WILD ROSE (ROS) | 1 | 75 |
| HAZELNUT (COCOC) | 1 | 23 |
| CREEPING SNOWBERRY (SYMO) | 2 | 47 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 35 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 47 |
| SWORDFERN (POMU1) | 3 | 35 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 47 |
| WESTERN MODESTY (WHMO) | 6 | 23 |
| VANILLA LEAF (ACTR) | 1 | 35 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 35 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 3 | 58 |
| IRIS (IRI) | 1 | 41 |
| RAYLESS ARNICA (ARDI3) | 1 | 58 |

Table 28. Environment and timber summary for the tanoak/ rhododendron-huckleberry oak type (LIDE2/RHMA-QUVA) N=6.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2662 | 2320 | 2750 | 178 |
| SLOPE (%) | 45 | 40 | 50 | 2 |
| ASPECT | N. EAST | | | |
| SOLAR RADIATION INDEX * | .401 | .301 | .470 | .044 |
| SURFACE ROCK | 3 | 1 | 7 | 8 |
| STAND AGE | 262 | 20 | 400 | 54 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6703 | 4757 | 6767 | 1445 |
| BASAL AREA ($ft^2$) | 215 | 73 | 253 | 55 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 89 | 0 | 289 | 58 |
| BASAL AREA ($ft^2$) | 13 | 0 | 40 | 7 |
| SITE CLASS | 2-4 | | | |
| SITE INDEX | 100-150 | | | |
| STAND DENSITY INDEX | 350 | 292 | 516 | 66 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 29. Soils summary for the tanoak/rhododendron-huckleberry oak type (LIDE2/RHMA-QUVA) N=6.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 30 | 24 | >40 |
| AWC (inches) | 2.1 | 1.5 | 2.9 |
| PARENT ROCK | serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 8 |
| COARSE FRAGMENT (%) | 38 | 25 | 50 |
| pH | 6.0 | 5.7 | 6.3 |
| COLOR | dark brown | | |
| TEXTURE | vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 51 | 32 | 68 |
| pH | 6.8 | 6.1 | 7.5 |
| COLOR | dark brown, yellowish brown | | |
| TEXTURE | xgl, gsil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 30. Vegetation summary for the tanoak/rhododendron-huckleberry oak type (LIDE2/RHMA-QUVA) N=6.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | 1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 8 | 2 | 15 | 5 |
| SHRUB COVER | 73 | 50 | 95 | 9 |
| TREE COVER | 74 | 60 | 80 | 9 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 32 | 100 |
| TANOAK (LIDE2) | 14 | 83 |
| PACIFIC MADRONE (ARME3) | 3 | 66 |
| CHINQUAPIN (CACH2) | 5 | 33 |
| CANYON LIVE OAK (QUCH2) | 3 | 33 |
| SUGAR PINE (PILA) | 5 | 83 |
| PACIFIC YEW (TABR) | 13 | 33 |
| INCENSE CEDAR (LIDE3) | 4 | 50 |
| CALIFORNIA BAY (UMCA1) | 5 | 16 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 19 | 83 |
| DOUGLAS-FIR (PSME) | 3 | 83 |
| CANYON LIVE OAK (QUCH2) | 2 | 66 |
| SUGAR PINE (PILA) | 1 | 33 |
| CHINQUAPIN (CACH2) | 1 | 33 |
| PACIFIC YEW (TABR) | 2 | 33 |
| CALIFORNIA BAY (UMCA1) | 4 | 33 |
| INCENSE CEDAR (LIDE3) | 1 | 50 |

| | | |
|---|---|---|
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 8 | 83 |
| SALAL (GASH) | 17 | 83 |
| TRAILING BLACKBERRY (RUUR) | 1 | 83 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 33 |
| WILD ROSE (ROS) | 3 | 83 |
| EVERGREEN HUCKLEBERRY (VAOV) | 23 | 33 |
| RED HUCKLEBERRY (VAPA) | 9 | 83 |
| RHODODENDRON (RHMA) | 23 | 100 |
| VINE MAPLE (ACCI) | 8 | 33 |
| HUCKLEBERRY OAK (QUVA) | 9 | 100 |
| SERVICEBERRY (AMAL) | 1 | 20 |
| WHITE-LEAF MANZANITA (ARVI3) | 50 | 33 |
| COFFEEBERRY (RHCA2) | 7 | 50 |
| DWARF TANBARK (LIDEE) | 13 | 33 |
| HOARY MANZANITA (ARCA5) | 1 | 33 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 33 |
| SWORDFERN (POMU1) | 2 | 100 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| WESTERN MODESTY (WHMO) | 2 | 100 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 50 |
| VANILLA LEAF (ACTR) | 1 | 33 |
| STARFLOWER (TRLA3) | 1 | 50 |
| IRIS (IRI) | 1 | 66 |
| BEARGRASS (XETE) | 2 | 83 |
| TWINFLOWER (LIBOL) | 8 | 66 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 50 |
| REDWOOD SORREL (OXOR1) | 2 | 33 |
| FAIRYBELL (DIS3) | 1 | 33 |

Table 31. Environment and timber summary for the tanoak/dwarf Oregon-grape type (LIDE2/BENE1) N=45.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, ORLEANS, GASQUET, SALMON RIVER, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2808 | 1900 | 3722 | 93 |
| SLOPE (%) | 48 | 20 | 75 | 19 |
| ASPECT | N. WEST<br>N. EAST | | | |
| SOLAR RADIATION INDEX * | .390 | .247 | .590 | .017 |
| SURFACE ROCK | 6 | 0 | 20 | 9 |
| STAND AGE | 258 | 63 | 512 | 15 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8602 | 3254 | 11194 | 723 |
| BASAL AREA ($ft^2$) | 209 | 80 | 413 | 17 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1195 | 0 | 3768 | 154 |
| BASAL AREA ($ft^2$) | 79 | 0 | 160 | 10 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 444 | 230 | 644 | 26 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 32. Soils summary for the tanoak/dwarf Oregon-grape type (LIDE2/BENE1) N=45.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 7 | >40 |
| AWC (inches) | 4.1 | 1.6 | 6.6 |
| PARENT ROCK | phyllite<br>schist<br>mafic<br>greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 1 | 14 |
| COARSE FRAGMENT (%) | 36 | 15 | 60 |
| pH | 6.0 | 5.1 | 7.0 |
| COLOR | dark brown, very dark brown, very dark grayish brown, dark yellowish brown | | |
| TEXTURE | gl, l, vgcl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 10 | 70 |
| pH | 6.0 | 5.0 | 7.0 |
| COLOR | yellowish red, dark yellowish brown, dark brown, strong brown, brown | | |
| TEXTURE | gcl, cl, gl, vgl, sicl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 33. Vegetation summary for the tanoak/dwarf Oregon-grape type (LIDE2/BENE1) N=37.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 80 | 99 | <1 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 10 | 1 | 35 | 2 |
| SHRUB COVER | 13 | 1 | 41 | 2 |
| TREE COVER | 90 | 70 | 99 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| TANOAK (LIDE2) | 40 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 46 |
| PACIFIC DOGWOOD (CONU2) | 5 | 28 |
| SUGAR PINE (PILA) | 9 | 22 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 25 | 97 |
| DOUGLAS-FIR (PSME) | 2 | 62 |
| CANYON LIVE OAK (QUCH2) | 4 | 28 |
| SUGAR PINE (PILA) | 1 | 26 |
| PACIFIC DOGWOOD (CONU2) | 2 | 22 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 10 | 100 |
| POISON OAK (RHDI) | 2 | 35 |
| TRAILING BLACKBERRY (RUUR) | 1 | 24 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 21 |
| WILD ROSE (ROS) | 1 | 62 |
| HAZELNUT (COCOC) | 2 | 24 |
| CREEPING SNOWBERRY (SYMO) | 1 | 31 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 57 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 57 |
| SWORDFERN (POMU1) | 2 | 48 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 44 |
| WESTERN MODESTY (WHMO) | 3 | 62 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 46 |
| VANILLA LEAF (ACTR) | 4 | 51 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 44 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 42 |
| STARFLOWER (TRLA3) | 1 | 37 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 3 | 31 |
| RAYLESS ARNICA (ARDI3) | 1 | 20 |

Table 34. Environment and timber summary for the tanoak-California bay/poison oak type (LIDE2-UMCA1/RHDI) N=4.

| RANGER DISTRICT | UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1618 | 1140 | 1930 | 169 |
| SLOPE (%) | 56 | 50 | 68 | 12 |
| ASPECT | S. EAST | | | |
| SOLAR RADIATION INDEX * | .490 | .456 | .599 | .040 |
| SURFACE ROCK | 2 | 1 | 2 | <1 |
| STAND AGE | 154 | 121 | 209 | 20 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9123 | 8108 | 10137 | 1425 |
| BASAL AREA ($ft^2$) | 240 | 173 | 307 | 41 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1024 | 0 | 2047 | 907 |
| BASAL AREA ($ft^2$) | 40 | 0 | 80 | 41 |
| SITE CLASS | 1A | | | |
| SITE INDEX | 200 | | | |
| STAND DENSITY INDEX | 414 | 299 | 528 | 77 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 35. Soils summary for the tanoak-California bay/poison oak type (LIDE2-UMCA1/RHDI) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 31 | >40 |
| AWC (inches) | 4.5 | 3.2 | 6.0 |
| PARENT ROCK | serpentine mixed | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 3 | 7 |
| COARSE FRAGMENT (%) | 38 | 20 | 50 |
| pH | 6.3 | 6.6 | 7.0 |
| COLOR | very dark grayish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 30 | 61 |
| pH | 6.2 | 6.3 | 6.9 |
| COLOR | dark grayish brown, yellowish brown | | |
| TEXTURE | gl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 36. Vegetation summary for the tanoak-California bay/poison oak type (LIDE2-UMCA1/RHDI) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 85 | 95 | 2 |
| GRASS COVER | <1 | 0 | 1 | 0 |
| HERB COVER | 3 | 1 | 6 | 1 |
| SHRUB COVER | 5 | 0 | 15 | 3 |
| TREE COVER | 89 | 85 | 90 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| TANOAK (LIDE2) | 32 | 100 |
| PACIFIC MADRONE (ARME3) | 23 | 75 |
| CANYON LIVE OAK (QUCH2) | 5 | 25 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| BIGLEAF MAPLE (ACMA) | 8 | 50 |
| BLACK OAK (QUKE) | 3 | 75 |
| CALIFORNIA BAY (UMCA1) | 25 | 100 |
| JEFFREY PINE (PIJE) | 15 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 12 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 50 |
| CANYON LIVE OAK (QUCH2) | 1 | 50 |
| SUGAR PINE (PILA) | 1 | 50 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| CALIFORNIA BAY (UMCA1) | 8 | 100 |
| INCENSE CEDAR (LIDE3) | 1 | 25 |
| WHITE FIR (ABCO) | 1 | 25 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 1 | 25 |
| POISON OAK (RHDI) | 5 | 75 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 75 |
| WILD ROSE (ROS) | 1 | 50 |
| HAZELNUT (COCOC) | 1 | 50 |
| CREEPING SNOWBERRY (SYMO) | 1 | 25 |
| STREAMSIDE SNOWBERRY (SYRI) | 1 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 50 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 75 |
| SWORDFERN (POMU1) | 1 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 25 |
| WESTERN PRINCE'S PINE (CHUMO) | 3 | 25 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 50 |
| STARFLOWER (TRLA3) | 1 | 75 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 25 |
| IRIS (IRI) | 1 | 25 |
| RAYLESS ARNICA (ARDI3) | 1 | 25 |
| FALSE SOLOMON'S-SEAL (SMRAA) | 1 | 25 |
| SMALL BEDSTRAW (GATR) | 1 | 25 |
| PINE VIOLET (VILO) | 1 | 25 |
| PACIFIC HOUND'S TONGUE (CYGR) | 1 | 25 |
| VIOLET (VIO) | 1 | 25 |

Table 37. Environment and timber summary for the tanoak-bigleaf maple/swordfern type (LIDE2-ACMA/POMU1) N=32.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2485 | 1400 | 3400 | 125 |
| SLOPE (%) | 61 | 25 | 90 | 3 |
| ASPECT | N. WEST S. EAST** | | | |
| SOLAR RADIATION INDEX * | .420 | .227 | .597 | .024 |
| SURFACE ROCK | 16 | 0 | 50 | 4 |
| STAND AGE | 233 | 26 | 520 | 16 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7713 | 2637 | 14567 | 807 |
| BASAL AREA ($ft^2$) | 204 | 93 | 387 | 23 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 950 | 0 | 2624 | 156 |
| BASAL AREA ($ft^2$) | 54 | 0 | 147 | 9 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 387 | 186 | 516 | 29 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
** Topographic shading on southern aspects contributes to a cool/moist environment.

Table 38. Soils summary for the tanoak-bigleaf maple/swordfern type (LIDE2-ACMA/POMU1) N=32.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 21 | >40 |
| AWC (inches) | 4.5 | 1.1 | 60 |
| PARENT ROCK | greenstone<br>granite<br>mafic<br>schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 9 |
| COARSE FRAGMENT (%) | 39 | 13 | 65 |
| pH | 6.2 | 5.4 | 7.0 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown, black, very dark brown | | |
| TEXTURE | gl, vgl, vgsl, gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 20 | 81 |
| pH | 6.3 | 5.6 | 7.0 |
| COLOR | yellowish brown, dark brown, dark yellowish brown, strong brown | | |
| TEXTURE | gl, vgl, gscl, gsil, stcl, xgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 39. Vegetation summary for the tanoak-bigleaf maple/swordfern type (LIDE2-ACMA/POMU1) N=32.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 80 | 99 | 1 |
| GRASS COVER | <1 | 0 | 2 | 1 |
| HERB COVER | 7 | 1 | 25 | 3 |
| SHRUB COVER | 15 | 1 | 40 | 4 |
| TREE COVER | 87 | 60 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| TANOAK (LIDE2) | 32 | 100 |
| PACIFIC MADRONE (ARME3) | 7 | 56 |
| CANYON LIVE OAK (QUCH2) | 7 | 50 |
| SUGAR PINE (PILA) | 11 | 21 |
| PACIFIC DOGWOOD (CONU2) | 7 | 31 |
| BIGLEAF MAPLE (ACMA) | 12 | 100 |
| BLACK OAK (QUKE) | 6 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 59 |
| CANYON LIVE OAK (QUCH2) | 3 | 53 |
| PACIFIC YEW (TABR) | 1 | 21 |
| BIGLEAF MAPLE (ACMA) | 1 | 25 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 12 | 68 |
| POISON OAK (RHDI) | 3 | 62 |
| TRAILING BLACKBERRY (RUUR) | 1 | 40 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 28 |
| WILD ROSE (ROS) | 2 | 55 |
| HAZELNUT (COCOC) | 2 | 43 |
| CREEPING SNOWBERRY (SYMO) | 1 | 31 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 28 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 53 |
| SWORDFERN (POMU1) | 2 | 81 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| WESTERN MODESTY (WHMO) | 11 | 43 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 31 |
| VANILLA LEAF (ACTR) | 2 | 28 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 21 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 34 |
| STARFLOWER (TRLA2) | 1 | 37 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 21 |
| IRIS (IRI) | 1 | 25 |
| HAWKWEED (HIAL) | 1 | 31 |

Table 40. Environment and timber summary for the tanoak/vine maple-salal type (LIDE2/ACCI-GASH) N=18.

| RANGER DISTRICT | ORLEANS, GASQUET, UKONOM, HAPPY CAMP, MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2280 | 1300 | 3205 | 151 |
| SLOPE (%) | 46 | 0 | 70 | 7 |
| ASPECT | N. WEST SOUTH S. EAST** | | | |
| SOLAR RADIATION INDEX * | .434 | .260 | .599 | .020 |
| SURFACE ROCK | 17 | 0 | 55 | 7 |
| STAND AGE | 322 | 175 | 548 | 24 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10263 | 4887 | 15615 | 1068 |
| BASAL AREA ($ft^2$) | 267 | 107 | 387 | 25 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 845 | 0 | 2083 | 166 |
| BASAL AREA ($ft^2$) | 51 | 0 | 107 | 9 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 467 | 304 | 582 | 27 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**Topographic shading on southern aspects contributes to a cool/moist environment.

Table 41. Soils summary for the tanoak/vine maple-salal type (LIDE2/ACCI-GASH) N=18.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 14 | >40 |
| AWC (inches) | 3.6 | 1.1 | 5.6 |
| PARENT ROCK | mixed | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 11 |
| COARSE FRAGMENT (%) | 46 | 20 | 68 |
| pH | 6.1 | 5.0 | 7.2 |
| COLOR | dark brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 50 | 22 | 65 |
| pH | 6.3 | 6.0 | 7.2 |
| COLOR | dark yellowish brown | | |
| TEXTURE | gcl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 42. Vegetation summary for the tanoak/vine maple-salal type (LIDE2/ACCI-GASH) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 90 | 99 | 1 |
| GRASS COVER | <1 | 0 | 3 | <1 |
| HERB COVER | 10 | 1 | 22 | 5 |
| SHRUB COVER | 65 | 25 | 95 | 6 |
| TREE COVER | 76 | 50 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 49 | 100 |
| TANOAK (LIDE2) | 26 | 100 |
| CHINQUAPIN (CACH2) | 11 | 22 |
| CANYON LIVE OAK (QUCH2) | 7 | 27 |
| PACIFIC DOGWOOD (CONU2) | 5 | 38 |
| BIGLEAF MAPLE (ACMA) | 7 | 72 |
| PACIFIC YEW (TABR) | 7 | 44 |
| ALDER (ALOR) | 9 | 22 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 7 | 94 |
| DOUGLAS-FIR (PSME) | 2 | 88 |
| CANYON LIVE OAK (QUCH2) | 3 | 50 |
| CHINQUAPIN (CACH2) | 2 | 27 |
| PACIFIC DOGWOOD (CONU2) | 3 | 33 |
| PACIFIC YEW (TABR) | 3 | 66 |
| CALIFORNIA BAY (UMCA1) | 2 | 22 |
| WHITE FIR (ABCO) | 1 | 22 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 13 | 88 |
| SALAL (GASH) | 29 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 50 |
| EVERGREEN HUCKLEBERRY (VAOV) | 2 | 44 |
| WILD ROSE (ROS) | 14 | 49 |
| HAZELNUT (COCOC) | 4 | 66 |
| CREEPING SNOWBERRY (SYMO) | 1 | 28 |
| RED HUCKLEBERRY (VAPA) | 3 | 72 |
| RHODODENDRON (RHMA) | 18 | 38 |
| VINE MAPLE (ACCI) | 25 | 100 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 2 | 50 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 27 |
| SWORDFERN (POMU1) | 10 | 94 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 38 |
| WESTERN MODESTY (WHMO) | 4 | 50 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 33 |
| VANILLA LEAF (ACTR) | 2 | 66 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 33 |
| STARFLOWER (TRLA3) | 1 | 44 |
| IRIS (IRI) | 2 | 22 |
| REDWOOD VIOLET (VISE) | 2 | 38 |
| HAWKWEED (HIAL) | 1 | 22 |
| TWINFLOWER (LIBOL) | 5 | 33 |
| WHITE TRILLIUM (TROV2) | 1 | 61 |
| REDWOOD SORREL (OXOR1) | 8 | 33 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 33 |
| FESCUE (FES) | 1 | 22 |

Table 43. Environment and timber summary for the tanoak/vine maple type (LIDE2/ACCI) N=12.

| RANGER DISTRICT | UKONOM, SALMON RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2981 | 2340 | 3320 | 80 |
| SLOPE (%) | 52 | 20 | 80 | 7 |
| ASPECT | N. WEST | | | |
| SOLAR RADIATION INDEX * | .368 | .208 | .466 | .033 |
| SURFACE ROCK | 20 | 0 | 85 | 11 |
| STAND AGE | 286 | 82 | 490 | 29 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8692 | 4199 | 11391 | 1182 |
| BASAL AREA ($ft^2$) | 225 | 133 | 347 | 26 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 535 | 155 | 588 | 175 |
| BASAL AREA ($ft^2$) | 44 | 13 | 93 | 12 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 413 | 333 | 543 | 42 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 44. Soils summary for the tanoak/vine maple type (LIDE2/ACCI) N=12.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 21 | >40 |
| AWC (inches) | 3.6 | 1.9 | 5.5 |
| PARENT ROCK | phyllite<br>granite<br>mixed | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 10 |
| COARSE FRAGMENT (%) | 46 | 25 | 70 |
| pH | 6.3 | 6.0 | 6.9 |
| COLOR | very dark grayish brown, dark brown, black, strong brown | | |
| TEXTURE | gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 25 | 60 |
| pH | 6.3 | 6.0 | 6.6 |
| COLOR | strong brown, yellowish brown, dark brown | | |
| TEXTURE | gl, gcl, vgl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 45. Vegetation summary for the tanoak/vine maple type (LIDE2/ACCI) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 80 | 99 | 2 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 9 | 1 | 16 | 3 |
| SHRUB COVER | 21 | 3 | 30 | 6 |
| TREE COVER | 81 | 60 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 47 | 100 |
| TANOAK (LIDE2) | 27 | 91 |
| PACIFIC MADRONE (ARME3) | 3 | 25 |
| CHINQUAPIN (CACH2) | 13 | 41 |
| CANYON LIVE OAK (QUCH2) | 14 | 33 |
| SUGAR PINE (PILA) | 6 | 33 |
| PACIFIC DOGWOOD (CONU2) | 4 | 66 |
| BIGLEAF MAPLE (ACMA) | 13 | 33 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 41 |
| CANYON LIVE OAK (QUCH2) | 2 | 50 |
| SUGAR PINE (PILA) | 1 | 25 |
| CHINQUAPIN (CACH2) | 3 | 41 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 10 | 75 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| HAZELNUT (COCOC) | 3 | 50 |
| RED HUCKLEBERRY (VAPA) | 7 | 33 |
| WILD ROSE (ROS) | 1 | 33 |
| CREEPING SNOWBERRY (SYMO) | 1 | 33 |
| VINE MAPLE (ACCI) | 16 | 100 |
| **HERBS & GRASSES** | | |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 41 |
| WESTERN MODESTY (WHMO) | 2 | 58 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 41 |
| VANILLA LEAF (ACTR) | 2 | 58 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 58 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 41 |
| STARFLOWER (TRLA3) | 1 | 41 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 66 |
| REDWOOD VIOLET (VISE) | 2 | 25 |
| TWINFLOWER (LIBOL) | 9 | 25 |

Table 46. Environment and timber summary for the tanoak-Port-Orford cedar-California bay/evergreen huckleberry type (LIDE2-CHLA-UMCA1/VAOV) N=14.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1232 | 600 | 1600 | 134 |
| SLOPE (%) | 37 | 10 | 75 | 7 |
| ASPECT | WEST N.EAST | | | |
| SOLAR RADIATION INDEX * | .440 | .325 | .591 | .033 |
| SURFACE ROCK | 2 | 0 | 4 | <1 |
| STAND AGE | 330 | 192 | 640 | 32 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10658 | 4111 | 14223 | 1302 |
| BASAL AREA ($ft^2$) | 261 | 133 | 373 | 27 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 975 | 155 | 1832 | 197 |
| BASAL AREA ($ft^2$) | 60 | 13 | 93 | 11 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 473 | 372 | 563 | 37 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 47. Soils summary for the tanoak-Port-Orford cedar-California bay/evergreen huckleberry type (LIDE2-CHLA-UMCA1/VAOV) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 25 | >40 |
| AWC (inches) | 3.6 | 2.3 | 4.6 |
| PARENT ROCK | mafic greenstone serpentine phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 3 | 9 |
| COARSE FRAGMENT (%) | 51 | 30 | 85 |
| pH | 6.2 | 5.7 | 7.0 |
| COLOR | dark brown, very dark grayish brown, very dark brown | | |
| TEXTURE | vgl, xgl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 36 | 20 | 55 |
| pH | 6.3 | 5.8 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | gl, vgl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 48. Vegetation summary for the tanoak-Port-Orford cedar-California bay/evergreen huckleberry type (LIDE2-CHLA-UMCA1/VAOV) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 99 | 97 | 99 | <1 |
| GRASS COVER | 1 | 0 | 4 | <1 |
| HERB COVER | 21 | 5 | 40 | 3 |
| SHRUB COVER | 53 | 17 | 93 | 7 |
| TREE COVER | 92 | 90 | 97 | <1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 33 | 100 |
| DOUGLAS-FIR (PSME) | 39 | 100 |
| TANOAK (LIDE2) | 30 | 100 |
| PACIFIC YEW (TABR) | 5 | 35 |
| PACIFIC DOGWOOD (CONU2) | 3 | 64 |
| BIGLEAF MAPLE (ACMA) | 8 | 57 |
| RED ALDER (ALOR) | 9 | 21 |
| CALIFORNIA BAY (UMCA1) | 12 | 71 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 92 |
| DOUGLAS-FIR (PSME) | 1 | 64 |
| TANOAK (LIDE2) | 8 | 100 |
| PACIFIC YEW (TABR) | 2 | 21 |
| PACIFIC DOGWOOD (CONU2) | 2 | 50 |
| CALIFORNIA BAY (UMCA1) | 3 | 100 |
| CASCARA (RHPU) | 2 | 21 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 6 | 28 |
| TRAILING BLACKBERRY (RUUR) | 1 | 57 |
| BALDHIP ROSE (ROGY) | 1 | 21 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 57 |
| SALAL (GASH) | 12 | 64 |
| HAZELNUT (COCOC) | 3 | 71 |
| THIMBLEBERRY (RUPA2) | 1 | 21 |
| VINE MAPLE (ACCI) | 5 | 21 |
| EVERGREEN HUCKLEBERRY (VAOV) | 40 | 100 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 42 |
| TWINFLOWER (LIBOL) | 3 | 42 |
| STARFLOWER (TRLA3) | 1 | 50 |
| WHITE TRILLIUM (TROV2) | 1 | 85 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 35 |
| WESTERN MODESTY (WHMO) | 4 | 42 |
| SWORDFERN (POMU1) | 8 | 92 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 21 |
| REDWOOD VIOLET (VISE) | 2 | 21 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 42 |
| WILD GINGER (ASCA2) | 2 | 57 |
| FIVE-FINGER FERN (ADPEA) | 2 | 28 |
| OREGON TRILLIUM (TRRI) | 1 | 21 |
| REDWOOD SORREL (OXOR1) | 7 | 50 |
| GIANT CHAIN-FERN (WOFI) | 2 | 21 |
| CALIFORNIA SPIKENARD (ARCA2) | 1 | 21 |
| SEDGE (CAR1) | 1 | 21 |
| CALIFORNIA SWEETGRASS (HIOC) | 2 | 35 |

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Table 49. Environment and timber summary for the tanoak-Port-Orford cedar/evergreen huckleberry-western azalea type (LIDE2-CHLA/VAOV-RHOC) N=9.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1692 | 1210 | 2350 | 215 |
| SLOPE (%) | 41 | 15 | 65 | 11 |
| ASPECT | NORTH<br>S. EAST | | | |
| SOLAR RADIATION INDEX * | .450 | .383 | .586 | .029 |
| SURFACE ROCK | 3 | 0 | 7 | 1 |
| STAND AGE | 283 | 102 | 393 | 30 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8140 | 5284 | 10633 | 989 |
| BASAL AREA ($ft^2$) | 310 | 253 | 400 | 43 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 435 | 0 | 2487 | 304 |
| BASAL AREA ($ft^2$) | 26 | 0 | 146 | 18 |
| SITE CLASS | 3-4 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 535 | 382 | 747 | 83 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 50. Soils summary for the tanoak-Port-Orford cedar/evergreen huckleberry-western azalea type (LIDE2-CHLA/VAOV-RHOC) N=9.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 23 | >40 |
| AWC (inches) | 4.0 | 2.1 | 5.1 |
| PARENT ROCK | serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 2 | 8 |
| COARSE FRAGMENT (%) | 32 | 10 | 60 |
| pH | 6.8 | 6.5 | 7.0 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | l, gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 16 | 52 |
| pH | 7.1 | 6.0 | 7.5 |
| COLOR | dark yellowish brown, yellowish brown, dark brown | | |
| TEXTURE | vgcl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 51. Vegetation summary for the tanoak-Port-Orford cedar/evergreen huckleberry-western azalea type (LIDE2-CHLA/VAOV-RHOC) N=9.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 99 | 98 | 99 | <1 |
| GRASS COVER | 1 | 0 | 2 | <1 |
| HERB COVER | 14 | 5 | 21 | 4 |
| SHRUB COVER | 58 | 40 | 90 | 8 |
| TREE COVER | 88 | 80 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 34 | 100 |
| DOUGLAS-FIR (PSME) | 37 | 100 |
| SUGAR PINE (PILA) | 4 | 33 |
| CHINQUAPIN (CACH2) | 7 | 22 |
| TANOAK (LIDE2) | 22 | 100 |
| PACIFIC MADRONE (ARME3) | 3 | 44 |
| PACIFIC YEW (TABR) | 3 | 44 |
| PACIFIC DOGWOOD (CONU2) | 3 | 33 |
| RED ALDER (ALOR) | 4 | 22 |
| CALIFORNIA BAY (UMCA1) | 5 | 33 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 2 | 77 |
| DOUGLAS-FIR (PSME) | 2 | 44 |
| TANOAK (LIDE2) | 8 | 100 |
| CHINQUAPIN (CACH2) | 1 | 22 |
| PACIFIC YEW (TABR) | 1 | 66 |
| PACIFIC DOGWOOD (CONU2) | 2 | 22 |
| CALIFORNIA BAY (UMCA1) | 2 | 55 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 3 | 55 |
| HUCKLEBERRY OAK (QUVA) | 2 | 33 |
| TRAILING BLACKBERRY (RUUR) | 1 | 44 |
| BALDHIP ROSE (ROGY) | 1 | 11 |
| WESTERN AZALEA (RHOC) | 12 | 100 |
| SALAL (GASH) | 18 | 100 |
| PACIFIC RHODODENDRON (RHMA) | 6 | 77 |
| HAZELNUT (COCOC) | 2 | 33 |
| EVERGREEN HUCKLEBERRY (VAOV) | 24 | 100 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 33 |
| GOOSEBERRY (RIB) | 1 | 22 |
| LABRADOR TEA (LEGCL) | 2 | 22 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 3 | 33 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 66 |
| TWINFLOWER (LIBOL) | 3 | 33 |
| BEARGRASS (XETE) | 2 | 55 |
| STARFLOWER (TRLA3) | 1 | 44 |
| WESTERN MODESTY (WHMO) | 2 | 55 |
| IRIS (IRI) | 1 | 22 |
| SWORDFERN (POMU1) | 5 | 77 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 4 | 33 |
| STARRY SOLOMON'S SEAL (SMST) | 1 | 22 |
| FAIRYSLIPPER (CABU2) | 1 | 33 |
| OREGON TRILLIUM (TRRI) | 1 | 33 |
| REDWOOD SORREL (OXOR1) | 3 | 66 |
| SEDGE (CAR1) | 1 | 44 |
| CALIFORNIA SWEETGRASS (HIOC) | 2 | 44 |

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Table 52. Environment and timber summary for the tanoak-Port-Orford cedar/evergreen huckleberry type (LIDE2-CHLA/VAOV) N=26.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1909 | 1280 | 2660 | 87 |
| SLOPE (%) | 37 | 5 | 70 | 5 |
| ASPECT | N. EAST<br>N. WEST | | | |
| SOLAR RADIATION INDEX * | .410 | .248 | .520 | .020 |
| SURFACE ROCK | 3 | 0 | 8 | 4 |
| STAND AGE | 327 | 180 | 544 | 18 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11737 | 5033 | 22821 | 1082 |
| BASAL AREA ($ft^2$) | 309 | 133 | 540 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 533 | 0 | 679 | 134 |
| BASAL AREA ($ft^2$) | 36 | 0 | 107 | 7 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 481 | 224 | 660 | 32 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 53. Soils summary for the tanoak-Port-Orford cedar/evergreen huckleberry type (LIDE2-CHLA/VAOV) N=26.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 7 | >40 |
| AWC (inches) | 3.4 | 1.2 | 5.6 |
| PARENT ROCK | phyllite greenstone serpentine mafic schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 10 |
| COARSE FRAGMENT (%) | 39 | 10 | 50 |
| pH | 6.0 | 5.3 | 6.8 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | vgl, gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 41 | 18 | 75 |
| pH | 6.1 | 5.4 | 7.0 |
| COLOR | dark grayish brown, strong brown, dark yellowish brown, dark brown | | |
| TEXTURE | gl, vgl, sicl, vgsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 54. Vegetation summary for the tanoak-Port-Orford cedar/evergreen huckleberry type (LIDE2-CHLA/VAOV) N=26.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | <1 |
| GRASS COVER | <1 | 0 | 4 | <1 |
| HERB COVER | 16 | 1 | 20 | 4 |
| SHRUB COVER | 53 | 30 | 80 | 4 |
| TREE COVER | 88 | 75 | 97 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 33 | 100 |
| DOUGLAS-FIR (PSME) | 38 | 100 |
| TANOAK (LIDE2) | 26 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 34 |
| PACIFIC YEW (TABR) | 8 | 23 |
| BIGLEAF MAPLE (ACMA) | 5 | 34 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 96 |
| DOUGLAS-FIR (PSME) | 1 | 57 |
| TANOAK (LIDE2) | 9 | 100 |
| CHINQUAPIN (CACH2) | 1 | 23 |
| PACIFIC YEW (TABR) | 1 | 23 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 4 | 53 |
| TRAILING BLACKBERRY (RUUR) | 1 | 38 |
| BALDHIP ROSE (ROGY) | 1 | 23 |
| DWARF OREGON-GRAPE (BENE1) | 4 | 76 |
| SALAL (GASH) | 15 | 96 |
| PACIFIC RHODODENDRON (RHMA) | 10 | 50 |
| EVERGREEN HUCKLEBERRY (VAOV) | 30 | 100 |
| **HERBS & GRASSES** | | |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 80 |
| TWINFLOWER (LIBOL) | 11 | 23 |
| BEARGRASS (XETE) | 2 | 30 |
| STARFLOWER (TRLA3) | 1 | 38 |
| WHITE TRILLIUM (TROV2) | 1 | 38 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 26 |
| VANILLA LEAF (ACTR) | 2 | 26 |
| WESTERN MODESTY (WHMO) | 2 | 34 |
| SWORDFERN (POMU1) | 6 | 88 |
| BRACKENFERN (PTAQL) | 1 | 34 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 26 |
| REDWOOD VIOLET (VISE) | 2 | 26 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 38 |
| REDWOOD SORREL (OXOR1) | 8 | 46 |

Table 55. Environment and timber summary for the tanoak-Port-Orford cedar/dwarf Oregon-grape/twinflower type (LIDE2/CHLA/BENE1/LIBOL) N=10.

| RANGER DISTRICT | GASQUET, ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2815 | 2100 | 3150 | 135 |
| SLOPE (%) | 46 | 22 | 70 | 7 |
| ASPECT | NORTH | | | |
| SOLAR RADIATION INDEX * | .360 | .247 | .470 | .030 |
| SURFACE ROCK | 3 | 0 | 5 | 2 |
| STAND AGE | 339 | 175 | 500 | 34 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12778 | 6955 | 14199 | 1881 |
| BASAL AREA ($ft^2$) | 335 | 200 | 347 | 40 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 160 | 0 | 611 | 121 |
| BASAL AREA ($ft^2$) | 13 | 0 | 53 | 7 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 517 | 270 | 618 | 53 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 56. Soils summary for the tanoak-Port-Orford cedar/dwarf Oregon-grape/twinflower type (LIDE2-CHLA/BENE1/LIBOL) N=10.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 23 | >40 |
| AWC (inches) | 3.1 | 2.5 | 5.1 |
| PARENT ROCK | schist greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 1 | 6 |
| COARSE FRAGMENT (%) | 34 | 20 | 43 |
| pH | 6.2 | 5.5 | 6.5 |
| COLOR | very dark grayish brown | | |
| TEXTURE | vgl, gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 36 | 22 | 53 |
| pH | 6.6 | 5.8 | 7.9 |
| COLOR | dark grayish brown, strong brown | | |
| TEXTURE | vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 57. Vegetation summary for the tanoak-Port-Orford cedar/dwarf Oregon-grape/twinflower type (LIDE2-CHLA/BENE1/LIBOL) N=10.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 13 | 2 | 18 | 3 |
| SHRUB COVER | 12 | 3 | 15 | 8 |
| TREE COVER | 90 | 85 | 95 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 40 | 100 |
| DOUGLAS-FIR (PSME) | 38 | 100 |
| WHITE FIR (ABCO) | 3 | 20 |
| SUGAR PINE (PILA) | 3 | 20 |
| TANOAK (LIDE2) | 8 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 20 |
| PACIFIC YEW (TABR) | 2 | 30 |
| PACIFIC DOGWOOD (CONU2) | 2 | 30 |
| BIGLEAF MAPLE (ACMA) | 7 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 3 | 100 |
| WHITE FIR (ABCO) | 1 | 40 |
| DOUGLAS-FIR (PSME) | 1 | 80 |
| TANOAK (LIDE2) | 11 | 100 |
| PACIFIC YEW (TABR) | 1 | 40 |
| CANYON LIVE OAK (QUCH2) | 2 | 30 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 2 | 80 |
| TRAILING BLACKBERRY (RUUR) | 1 | 30 |
| BALDHIP ROSE (ROGY) | 1 | 60 |
| DWARF OREGON-GRAPE (BENE1) | 11 | 100 |
| WESTERN AZALEA (RHOC) | 3 | 20 |
| SALAL (GASH) | 4 | 60 |
| PACIFIC RHODODENDRON (RHMA) | 5 | 20 |
| HAZELNUT (COCOC) | 2 | 60 |
| CREEPING SNOWBERRY (SYMO) | 1 | 20 |
| VINE MAPLE (ACCI) | 1 | 20 |

| **HERBS & GRASSES** | | |
|---|---|---|
| PRINCE'S PINE (CHUMO) | 1 | 30 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| TWINFLOWER (LIBOL) | 5 | 80 |
| STARFLOWER (TRLA3) | 1 | 80 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 70 |
| VANILLA LEAF (ACTR) | 3 | 80 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 30 |
| WESTERN MODESTY (WHMO) | 3 | 80 |
| IRIS (IRI) | 1 | 20 |
| SWORDFERN (POMU1) | 3 | 70 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 30 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 30 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 40 |
| RAYLESS ARNICA (ARDI3) | 1 | 20 |
| WASHINGTON LILY (LIWAP) | 1 | 20 |
| FAIRYSLIPPER (CABU2) | 1 | 20 |
| FIVE-FINGER FERN (ADPEA) | 2 | 20 |
| REDWOOD SORREL (OXOR1) | 3 | 20 |

Table 58. Environment and timber summary for the tanoak-Port-Orford cedar-white alder/riparian type (LIDE2-CHLA-ALRH/RIPARIAN) N=4.

| RANGER DISTRICT | GASQUET, ORLEANS, UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2415 | 1900 | 3520 | 383 |
| SLOPE (%) | 25 | 10 | 30 | 16 |
| ASPECT | EAST | | | |
| SOLAR RADIATION INDEX * | .450 | .368 | .536 | .040 |
| SURFACE ROCK | 27 | 0 | 65 | 16 |
| STAND AGE | 384 | 203 | 521 | 66 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8532 | 4734 | 9695 | 2003 |
| BASAL AREA ($ft^2$) | 233 | 147 | 307 | 37 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 235 | 0 | 441 | 94 |
| BASAL AREA ($ft^2$) | 17 | 13 | 27 | 3 |
| SITE CLASS | 3 | | | |
| SITE INDEX | 150 | | | |
| STAND DENSITY INDEX | 406 | 323 | 508 | 45 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 59. Soils summary for the tanoak-Port-Orford cedar-white alder/riparian type (LIDE2-CHLA-ALRH/RIPARIAN) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 32 | 21 | >40 |
| AWC (inches) | 4.3 | 1.2 | 4.2 |
| PARENT ROCK | mafic serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 3 | 0 | 6 |
| COARSE FRAGMENT (%) | 34 | 30 | 37 |
| pH | 6.9 | 6.1 | 7.5 |
| COLOR | dark grayish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 49 | 40 | 64 |
| pH | 7.3 | 7.1 | 7.5 |
| COLOR | olive brown | | |
| TEXTURE | vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 60. Vegetation summary for the tanoak-Port-Orford cedar-white alder/riparian type (LIDE2-CHLA-ALRH/RIPARIAN) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 95 | 100 | 1 |
| GRASS COVER | 2 | 0 | 5 | 1 |
| HERB COVER | 13 | 5 | 25 | 5 |
| SHRUB COVER | 25 | 13 | 40 | 6 |
| TREE COVER | 89 | 85 | 98 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 33 | 100 |
| DOUGLAS-FIR (PSME) | 17 | 100 |
| WHITE FIR (ABCO) | 5 | 25 |
| SUGAR PINE (PILA) | 1 | 25 |
| CHINQUAPIN (CACH2) | 1 | 25 |
| TANOAK (LIDE2) | 9 | 75 |
| PACIFIC YEW (TABR) | 9 | 50 |
| PACIFIC DOGWOOD (CONU2) | 6 | 50 |
| BIGLEAF MAPLE (ACMA) | 2 | 25 |
| WHITE ALDER (ALRH) | 23 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 5 | 75 |
| WHITE FIR (ABCO) | 1 | 50 |
| DOUGLAS-FIR (PSME) | 5 | 25 |
| TANOAK (LIDE2) | 16 | 100 |
| CHINQUAPIN (CACH2) | 1 | 25 |
| PACIFIC YEW (TABR) | 1 | 25 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| CANYON LIVE OAK (QUCH2) | 1 | 75 |
| WHITE ALDER (ALRH) | 4 | 50 |
| BIGLEAF MAPLE (ACMA) | 2 | 25 |

| | | |
|---|---|---|
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 1 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 100 |
| BALDHIP ROSE (ROGY) | 1 | 25 |
| DWARF OREGON-GRAPE (BENE1) | 2 | 25 |
| WESTERN AZALEA (RHOC) | 20 | 25 |
| SALAL (GASH) | 21 | 50 |
| SERVICEBERRY (AMAL) | 1 | 25 |
| HAZELNUT (COCOC) | 4 | 25 |
| THIMBLEBERRY (RUPA2) | 1 | 25 |
| OCEANSPRAY (HODI) | 2 | 25 |
| WILD ROSE (ROS) | 1 | 25 |
| VINE MAPLE (ACCI) | 6 | 25 |
| POISON OAK (RHDI) | 12 | 25 |
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 1 | 25 |
| TWINFLOWER (LIBOL) | 3 | 75 |
| STARFLOWER (TRLA3) | 1 | 50 |
| WHITE TRILLIUM (TROV2) | 1 | 25 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 25 |
| VANILLA LEAF (ACTR) | 2 | 100 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 25 |
| WESTERN MODESTY (WHMO) | 2 | 50 |
| IRIS (IRI) | 1 | 25 |
| SWORDFERN (POMU1) | 1 | 75 |
| BRACKENFERN (PTAQL) | 1 | 50 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 50 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 25 |
| LADYFERN (ATFIC) | 6 | 50 |
| STARRY SOLOMON'S SEAL (SMST) | 1 | 25 |
| FIVE-FINGER FERN (ADPEA) | 2 | 75 |
| FRAGRANT BEDSTRAW (GATR2) | 1 | 25 |
| GIANT CHAIN-FERN (WOFI) | 1 | 25 |
| CALIFORNIA SPIKENARD (ARCA2) | 1 | 50 |
| NETTLELEAF GIANT-HYSSOP (AGUR) | 1 | 25 |
| COMMON HORSETAIL (EQAR) | 5 | 25 |
| THREE-TOOTHED MITREWORT (MITR3) | 1 | 25 |
| SEDGE (CAR1) | 5 | 25 |

Table 61. Environment and timber summary for the tanoak-Port-Orford cedar/vine maple type (LIDE2-CHLA/ACCI) N=7.

| RANGER DISTRICT | GASQUET, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2470 | 1420 | 2830 | 294 |
| SLOPE (%) | 41 | 5 | 80 | 12 |
| ASPECT | N. WEST | | | |
| SOLAR RADIATION INDEX * | .370 | .239 | .470 | .050 |
| SURFACE ROCK | 8 | 0 | 11 | 4 |
| STAND AGE | 318 | 221 | 405 | 25 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6744 | 4192 | 8368 | 2039 |
| BASAL AREA ($ft^2$) | 204 | 107 | 213 | 40 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 511 | 0 | 1042 | 169 |
| BASAL AREA ($ft^2$) | 38 | 0 | 107 | 14 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 256 | 184 | 330 | 68 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 62. Soils summary for the tanoak-Port-Orford cedar/vine maple type (LIDE2-CHLA/ACCI) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 34 | >40 |
| AWC (inches) | 3.6 | 1.9 | 5.3 |
| PARENT ROCK | mafic greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 1 | 9 |
| COARSE FRAGMENT (%) | 50 | 30 | 70 |
| pH | 5.8 | 5.5 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | vgl, xgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 39 | 16 | 60 |
| pH | 6.1 | 5.6 | 7.0 |
| COLOR | yellowish brown | | |
| TEXTURE | gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 63. Vegetation summary for the tanoak-Port-Orford cedar/vine maple type (LIDE2-CHLA/ACCI) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 90 | 99 | 2 |
| GRASS COVER | 1 | 0 | 1 | 3 |
| HERB COVER | 8 | 0 | 10 | 3 |
| SHRUB COVER | 54 | 20 | 98 | 14 |
| TREE COVER | 90 | 85 | 95 | 9 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 23 | 85 |
| DOUGLAS-FIR (PSME) | 39 | 100 |
| CHINQUAPIN (CACH2) | 2 | 42 |
| TANOAK (LIDE2) | 18 | 85 |
| PACIFIC MADRONE (ARME3) | 13 | 28 |
| PACIFIC YEW (TABR) | 3 | 42 |
| PACIFIC DOGWOOD (CONU2) | 3 | 57 |
| BIGLEAF MAPLE (ACMA) | 11 | 42 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 2 | 71 |
| WHITE FIR (ABCO) | 3 | 28 |
| DOUGLAS-FIR (PSME) | 3 | 28 |
| TANOAK (LIDE2) | 16 | 100 |
| CHINQUAPIN (CACH2) | 2 | 28 |
| PACIFIC DOGWOOD (CONU2) | 2 | 42 |
| CANYON LIVE OAK (QUCH2) | 1 | 28 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 2 | 42 |
| TRAILING BLACKBERRY (RUUR) | 1 | 57 |
| BALDHIP ROSE (ROGY) | 3 | 57 |
| DWARF OREGON-GRAPE (BENE1) | 19 | 85 |
| SALAL (GASH) | 42 | 42 |
| PACIFIC RHODODENDRON (RHMA) | 6 | 28 |
| HAZELNUT (COCOC) | 4 | 57 |
| VINE MAPLE (ACCI) | 37 | 100 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 4 | 28 |
| TWINFLOWER (LIBOL) | 7 | 57 |
| BEARGRASS (XETE) | 1 | 42 |
| STARFLOWER (TRLA3) | 1 | 42 |
| WHITE TRILLIUM (TROV2) | 1 | 28 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 42 |
| VANILLA LEAF (ACTR) | 2 | 57 |
| WESTERN MODESTY (WHMO) | 3 | 57 |
| SWORDFERN (POMU1) | 4 | 85 |
| BRACKENFERN (PTAQL) | 1 | 28 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 28 |
| TRAILPLANT (ADBI) | 1 | 28 |
| FAIRYSLIPPER (CABU2) | 1 | 42 |
| FRAGRANT BEDSTRAW (GATR2) | 1 | 42 |
| SUGAR SCOOP (TIUN) | 6 | 28 |

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Table 64. Environment and timber summary for the tanoak-Port-Orford cedar/red huckleberry type (LIDE2-CHLA/VAPA) N=4.

| RANGER DISTRICT | GASQUET, ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2885 | 2580 | 3180 | 145 |
| SLOPE (%) | 25 | 5 | 35 | 11 |
| ASPECT | VARIABLE | | | |
| SOLAR RADIATION INDEX * | .470 | .406 | .561 | .030 |
| SURFACE ROCK | 3 | 1 | 6 | 1 |
| STAND AGE | 361 | 103 | 593 | 102 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 12018 | 8997 | 15891 | 1542 |
| BASAL AREA ($ft^2$) | 329 | 280 | 400 | 26 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 92 | 0 | 276 | 69 |
| BASAL AREA ($ft^2$) | 9 | 0 | 27 | 7 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 534 | 474 | 621 | 32 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 65. Soils summary for the tanoak-Port-Orford cedar/red huckleberry type (LIDE2-CHLA/VAPA) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 30 | >40 |
| AWC (inches) | 2.8 | 2.2 | 3.4 |
| PARENT ROCK | serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 2 | 7 |
| COARSE FRAGMENT (%) | 43 | 35 | 60 |
| pH | 6.8 | 6.0 | 7.1 |
| COLOR | dark gray | | |
| TEXTURE | vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 48 | 31 | 55 |
| pH | 7.2 | 6.6 | 7.6 |
| COLOR | gray brown | | |
| TEXTURE | vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 66. Vegetation summary for the tanoak-Port-Orford cedar/red huckleberry type (LIDE2-CHLA/VAPA) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 95 | 99 | 1 |
| GRASS COVER | 2 | 0 | 5 | 1 |
| HERB COVER | 10 | 5 | 14 | 2 |
| SHRUB COVER | 11 | 5 | 19 | 3 |
| TREE COVER | 90 | 85 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| PORT-ORFORD CEDAR (CHLA) | 32 | 100 |
| DOUGLAS-FIR (PSME) | 45 | 100 |
| SUGAR PINE (PILA) | 3 | 50 |
| INCENSE CEDAR (LIDE3) | 12 | 25 |
| TANOAK (LIDE2) | 9 | 100 |
| PACIFIC MADRONE (ARME3) | 2 | 50 |
| PACIFIC YEW (TABR) | 2 | 25 |
| CALIFORNIA BAY (UMCA1) | 1 | 25 |
| CANYON LIVE OAK (QUCH2) | 8 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| PORT-ORFORD CEDAR (CHLA) | 2 | 75 |
| WHITE FIR (ABCO) | 1 | 25 |
| DOUGLAS-FIR (PSME) | 1 | 25 |
| TANOAK (LIDE2) | 27 | 75 |
| CHINQUAPIN (CACH2) | 1 | 50 |
| PACIFIC YEW (TABR) | 1 | 50 |
| CALIFORNIA BAY (UMCA1) | 3 | 25 |
| PACIFIC MADRONE (ARME3) | 1 | 25 |
| CANYON LIVE OAK (QUCH2) | 15 | 25 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 5 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| SADLER OAK (QUSA) | 1 | 25 |
| BALDHIP ROSE (ROGY) | 2 | 25 |
| PACIFIC RHODODENDRON (RHMA) | 1 | 25 |
| SERVICEBERRY (AMAL) | 5 | 25 |
| OCEANSPRAY (HODI) | 1 | 25 |
| BLACK CAP (RULE) | 15 | 25 |
| DEERBRUSH (CEIN) | 2 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 3 | 75 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 75 |
| TWINFLOWER (LIBOL) | 2 | 50 |
| BEARGRASS (XETE) | 2 | 100 |
| STARFLOWER (TRLA3) | 1 | 50 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 50 |
| VANILLA LEAF (ACTR) | 1 | 25 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 25 |
| WESTERN MODESTY (WHMO) | 2 | 50 |
| IRIS (IRI) | 1 | 50 |
| SWORDFERN (POMU1) | 2 | 75 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 25 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 50 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 25 |
| HAWKWEED (HIAL) | 1 | 25 |
| RAYLESS ARNICA (ARDI3) | 1 | 25 |
| CORALROOT (COR2) | 1 | 25 |
| STICKY STARWORT (STJA) | 1 | 25 |
| KELLOGIA (KEGA) | 1 | 25 |
| CALIFORNIA BEDSTRAW (GACA) | 3 | 25 |
| SEDGE (CAR1) | 1 | 50 |
| CALIFORNIA FESCUE (FECA) | 5 | 25 |
| BEARDED FESCUE (FESU1) | 1 | 25 |

Table 67. Environment and timber summary for the tanoak-black oak/rose type (LIDE2-QUKE/ROSE) N=16.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2280 | 1140 | 3400 | 160 |
| SLOPE (%) | 32 | 2 | 60 | 5 |
| ASPECT | WEST<br>S. WEST | | | |
| SOLAR RADIATION INDEX * | .468 | .397 | .559 | .017 |
| SURFACE ROCK | 2 | 0 | 5 | 3 |
| STAND AGE | 222 | 87 | 425 | 24 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8770 | 3930 | 12390 | 812 |
| BASAL AREA ($ft^2$) | 214 | 107 | 320 | 23 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1676 | 140 | 4370 | 319 |
| BASAL AREA ($ft^2$) | 89 | 13 | 140 | 15 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 463 | 239 | 567 | 33 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 68. Soils summary for the tanoak-black oak/rose type (LIDE2-QUKE/ROSE) N=16.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 40 | 24 | >40 |
| AWC (inches) | 5.5 | 4.8 | 6.7 |
| PARENT ROCK | schist<br>phyllite<br>greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 3 | 10 |
| COARSE FRAGMENT (%) | 34 | 10 | 70 |
| pH | 6.0 | 5.3 | 6.7 |
| COLOR | dark brown, dark reddish brown, dark yellowish brown | | |
| TEXTURE | gl, xgl, gscl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 27 | 7 | 45 |
| pH | 6.1 | 5.9 | 6.8 |
| COLOR | red, dark brown, yellowish red, strong brown, dark yellowish brown | | |
| TEXTURE | gcl, cl, gl, gsil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 69. Vegetation summary for the tanoak-black oak/rose type (LIDE2-QUKE/ROSE) N=16.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 85 | 99 | 3 |
| GRASS COVER | <1 | 0 | 1 | 0 |
| HERB COVER | 5 | 1 | 11 | 1 |
| SHRUB COVER | 3 | 0 | 12 | 1 |
| TREE COVER | 86 | 70 | 96 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 49 | 100 |
| TANOAK (LIDE2) | 41 | 100 |
| PACIFIC MADRONE (ARME3) | 6 | 56 |
| PACIFIC DOGWOOD (CONU2) | 52 | 37 |
| BLACK OAK (QUKE) | 6 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 23 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 75 |
| CANYON LIVE OAK (QUCH2) | 2 | 25 |
| BLACK OAK (QUKE) | 1 | 25 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 21 |
| WILD ROSE (ROS) | 1 | 68 |
| HAZELNUT (COCOC) | 2 | 31 |
| CREEPING SNOWBERRY (SYMO) | 1 | 25 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 62 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 62 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 37 |
| VANILLA LEAF (ACTR) | 1 | 25 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 31 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 37 |
| STARFLOWER (TRLA3) | 1 | 37 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 43 |

Table 70. Environment and timber summary for the tanoak-incense cedar/California fescue type (LIDE2-LIDE3/FECA) N=7.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2534 | 1800 | 2880 | 259 |
| SLOPE (%) | 36 | 30 | 62 | 7 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .450 | .371 | .561 | .029 |
| SURFACE ROCK | 3 | 0 | 6 | 4 |
| STAND AGE | 216 | 110 | 369 | 37 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9385 | 8396 | 11301 | 812 |
| BASAL AREA ($ft^2$) | 300 | 293 | 307 | 21 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 396 | 0 | 912 | 199 |
| BASAL AREA ($ft^2$) | 17 | 0 | 40 | 12 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 414 | 379 | 449 | 22 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 71. Soils summary for the tanoak-incense cedar/California fescue type (LIDE2-LIDE3/FECA) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 22 | >40 |
| AWC (inches) | 4.1 | 2.0 | 5.5 |
| PARENT ROCK | serpentine schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 11 |
| COARSE FRAGMENT (%) | 31 | 10 | 60 |
| pH | 6.2 | 6.0 | 6.5 |
| COLOR | dark brown, very dark grayish brown | | |
| TEXTURE | gl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 29 | 10 | 38 |
| pH | 6.6 | 6.2 | 7.0 |
| COLOR | reddish brown, dark yellowish brown | | |
| TEXTURE | vgl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 72. Vegetation summary for the tanoak-incense cedar/California fescue type (LIDE2-LIDE3/FECA) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 92 | 85 | 99 | 2 |
| GRASS COVER | 16 | 0 | 25 | 10 |
| HERB COVER | 1 | 0 | 4 | 4 |
| SHRUB COVER | 6 | 2 | 12 | 1 |
| TREE COVER | 80 | 60 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| TANOAK (LIDE2) | 14 | 42 |
| PACIFIC MADRONE (ARME3) | 10 | 71 |
| CANYON LIVE OAK (QUCH2) | 2 | 28 |
| SUGAR PINE (PILA) | 4 | 42 |
| BLACK OAK (QUKE) | 12 | 28 |
| INCENSE CEDAR (LIDE3) | 15 | 100 |
| CALIFORNIA BAY (UMCA1) | 32 | 28 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 10 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 71 |
| CANYON LIVE OAK (QUCH2) | 1 | 28 |
| SUGAR PINE (PILA) | 1 | 42 |
| CALIFORNIA BAY (UMCA1) | 3 | 42 |
| INCENSE CEDAR (LIDE3) | 2 | 71 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 2 | 28 |
| POISON OAK (RHDI) | 3 | 28 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 28 |
| WILD ROSE (ROS) | 1 | 28 |
| HAZELNUT (COCOC) | 1 | 22 |
| CREEPING SNOWBERRY (SYMO) | 1 | 22 |
| EVERGREEN HUCKLEBERRY (VAOV) | 2 | 28 |
| OCEANSPRAY (HODI) | 1 | 28 |
| HUCKLEBERRY OAK (QUVA) | 4 | 42 |
| PYGMY HOLLY-GRAPE (BEPU) | 1 | 28 |
| **HERBS & GRASSES** | | |
| SWORDFERN (POMU1) | 2 | 57 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 57 |
| WESTERN MODESTY (WHMO) | 6 | 42 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 28 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 28 |
| IRIS (IRI) | 1 | 71 |
| RAYLESS ARNICA (ARDI3) | 1 | 22 |
| HAWKWEED (HIAL) | 1 | 57 |
| SIERRA MILKWORT (POCO6) | 1 | 28 |
| INDIAN'S DREAM (ONDE) | 1 | 22 |
| WESTERN FESCUE (FEOC1) | 2 | 28 |
| CALIFORNIA FESCUE (FECA) | 29 | 71 |

Table 73. Environment and timber summary for the tanoak-canyon live oak/rockpile type (LIDE2-QUCH2/ROCKPILE) N=20.

| RANGER DISTRICT | ORLEANS, UKONOM, GASQUET, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3342 | 1965 | 4010 | 132 |
| SLOPE (%) | 56 | 35 | 80 | 4 |
| ASPECT | WEST<br>S. EAST | | | |
| SOLAR RADIATION INDEX * | .481 | .383 | .590 | .022 |
| SURFACE ROCK | 35 | 3 | 70 | 5 |
| STAND AGE | 206 | 45 | 430 | 26 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7254 | 3797 | 10636 | 800 |
| BASAL AREA ($ft^2$) | 210 | 93 | 307 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 916 | 0 | 2411 | 252 |
| BASAL AREA ($ft^2$) | 54 | 0 | 130 | 16 |
| SITE CLASS | 2-4 | | | |
| SITE INDEX | 100-150 | | | |
| STAND DENSITY INDEX | 411 | 253 | 563 | 40 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 74. Soils summary for the tanoak-canyon live oak/rockpile type (LIDE2-QUCH2/ROCKPILE) N=20.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 33 | 19 | >40 |
| AWC (inches) | 2.7 | 1.1 | 4.2 |
| PARENT ROCK | schist mafic greenstone phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 1 | 16 |
| COARSE FRAGMENT (%) | 38 | 20 | 85 |
| pH | 5.9 | 5.0 | 6.5 |
| COLOR | dark brown, dark yellowish brown, very dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 66 | 43 | 95 |
| pH | 6.1 | 5.6 | 7.0 |
| COLOR | dark brown, light olivish brown, yellowish brown | | |
| TEXTURE | xgl, xstl, gsil, xkl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 75. Vegetation summary for the tanoak-canyon live oak/rockpile type (LIDE2-QUCH2/ROCKPILE) N=20.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 92 | 85 | 99 | 2 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 3 | 1 | 8 | <1 |
| SHRUB COVER | 3 | 0 | 5 | 1 |
| TREE COVER | 92 | 75 | 99 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 41 | 100 |
| TANOAK (LIDE2) | 22 | 100 |
| PACIFIC MADRONE (ARME3) | 14 | 85 |
| CHINQUAPIN (CACH2) | 20 | 55 |
| CANYON LIVE OAK (QUCH2) | 21 | 95 |
| SUGAR PINE (PILA) | 7 | 35 |
| KNOBCONE PINE (PIAT1) | 9 | 35 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 13 | 100 |
| DOUGLAS-FIR (PSME) | 4 | 70 |
| CANYON LIVE OAK (QUCH2) | 6 | 95 |
| SUGAR PINE (PILA) | 1 | 20 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 1 | 25 |
| TRAILING BLACKBERRY (RUUR) | 1 | 40 |
| WILD ROSE (ROS) | 1 | 25 |
| CREEPING SNOWBERRY (SYMO) | 1 | 30 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 60 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 65 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 25 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 75 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 35 |
| BEARGRASS (XETE) | 2 | 25 |

Table 76. Environment and timber summary for the tanoak-canyon live oak/evergreen huckleberry type (LIDE2-QUCH2/VAOV) N=19.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1604 | 820 | 2560 | 116 |
| SLOPE (%) | 63 | 45 | 95 | 4 |
| ASPECT | WEST | | | |
| SOLAR RADIATION INDEX * | .404 | .225 | .587 | .028 |
| SURFACE ROCK | 8 | 0 | 20 | 2 |
| STAND AGE | 129 | 3 | 360 | 26 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6483 | 3320 | 9592 | 1078 |
| BASAL AREA ($ft^2$) | 163 | 53 | 280 | 26 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1130 | 541 | 1777 | 249 |
| BASAL AREA ($ft^2$) | 77 | 27 | 160 | 12 |
| SITE CLASS | 1A-3 | | | |
| SITE INDEX | 125-200 | | | |
| STAND DENSITY INDEX | 422 | 227 | 609 | 36 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 77. Soils summary for the tanoak-cnayon live oak/evergreen huckleberry type (LIDE2-QUCH2/VAOV) N=19.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 31 | 16 | >40 |
| AWC (inches) | 3.5 | 1.4 | 5.3 |
| PARENT ROCK | sandstone greenstone phyllite mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 11 |
| COARSE FRAGMENT (%) | 40 | 15 | 60 |
| pH | 6.1 | 5.2 | 6.9 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 19 | 48 |
| pH | 6.1 | 5.3 | 6.8 |
| COLOR | dark yellowish brown, dark brown, strong brown, yellowish brown | | |
| TEXTURE | vgl, gl, vgcl, gcl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 78. Vegetation summary for the tanoak-canyon live oak/evergreen huckleberry type (LIDE2-QUCH2/VAOV) N=19.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 88 | 65 | 99 | 3 |
| GRASS COVER | <1 | 0 | 5 | <1 |
| HERB COVER | 9 | 1 | 20 | 2 |
| SHRUB COVER | 46 | 25 | 95 | 8 |
| TREE COVER | 85 | 65 | 95 | 6 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 47 | 68 |
| TANOAK (LIDE2) | 23 | 73 |
| PACIFIC MADRONE (ARME3) | 5 | 68 |
| CHINQUAPIN (CACH2) | 5 | 26 |
| CANYON LIVE OAK (QUCH2) | 20 | 63 |
| SUGAR PINE (PILA) | 4 | 31 |
| PACIFIC DOGWOOD (CONU2) | 5 | 21 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 22 | 94 |
| DOUGLAS-FIR (PSME) | 2 | 84 |
| CANYON LIVE OAK (QUCH2) | 2 | 94 |
| CHINQUAPIN (CACH2) | 2 | 21 |
| SUGAR PINE (PILA) | 1 | 31 |
| PACIFIC DOGWOOD (CONU2) | 1 | 42 |
| CALIFORNIA BAY (UMCA1) | 1 | 26 |
| PACIFIC MADRONE (ARME3) | 2 | 36 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 4 | 36 |
| POISON OAK (RHDI) | 2 | 52 |
| SALAL (GASH) | 10 | 89 |
| TRAILING BLACKBERRY (RUUR) | 1 | 21 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 36 |
| WILD ROSE (ROS) | 1 | 52 |
| HAZELNUT (COCOC) | 3 | 26 |
| EVERGREEN HUCKLEBERRY (VAOV) | 37 | 100 |
| RHODODENDRON (RHMA) | 2 | 21 |
| SNOWBRUSH (CEVE3) | 14 | 36 |
| WHITELEAF MANZANITA (ARVI3) | 1 | 26 |
| BLACKBERRY (RUB2) | 1 | 21 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 3 | 73 |
| SWORDFERN (POMU1) | 4 | 63 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 47 |
| WESTERN MODESTY (WHMO) | 4 | 42 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 26 |
| STARFLOWER (TRLA3) | 1 | 36 |
| IRIS (IRI) | 1 | 31 |
| BEARGRASS (XETE) | 2 | 36 |
| REDWOOD VIOLET (VISE) | 1 | 21 |
| HAWKWEED (HIAL) | 1 | 31 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 2 | 63 |
| WESTERN FESCUE (FEOC1) | 1 | 31 |

Table 79. Environment and timber summary for the tanoak-canyon live oak/dwarf Oregon-grape-salal type (LIDE2-QUCH2/BENE1-GASH) N=14.

| RANGER DISTRICT | GASQUET, ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2983 | 2320 | 3820 | 131 |
| SLOPE (%) | 66 | 35 | 90 | 4 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .481 | .365 | .600 | .032 |
| SURFACE ROCK | 30 | 2 | 40 | 6 |
| STAND AGE | 270 | 150 | 450 | 25 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9187 | 3508 | 14548 | 1455 |
| BASAL AREA ($ft^2$) | 257 | 93 | 347 | 33 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 764 | 0 | 1823 | 182 |
| BASAL AREA ($ft^2$) | 43 | 0 | 100 | 9 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 431 | 279 | 575 | 39 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 80. Soils summary for the tanoak-canyon live oak/dwarf Oregon-grape-salal type (LIDE2-QUCH2/BENE1-GASH) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 24 | >40 |
| AWC (inches) | 2.9 | 1.0 | 4.9 |
| PARENT ROCK | phyllite<br>schist<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 9 |
| COARSE FRAGMENT (%) | 53 | 25 | 65 |
| pH | 6.0 | 5.6 | 6.5 |
| COLOR | dark brown, very dark grayish brown, very dark brown | | |
| TEXTURE | gl, xgl, xkl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 57 | 35 | 76 |
| pH | 6.2 | 5.4 | 6.5 |
| COLOR | yellowish brown, light olive brown, dark brown | | |
| TEXTURE | xgl, vgcl, gsil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 81. Vegetation summary for the tanoak-canyon live oak/dwarf Oregon-grape-salal type (LIDE2-QUCH2/BENE1-GASH) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 85 | 99 | 1 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 9 | 1 | 12 | 2 |
| SHRUB COVER | 39 | 10 | 75 | 6 |
| TREE COVER | 87 | 65 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 47 | 100 |
| TANOAK (LIDE2) | 26 | 100 |
| PACIFIC MADRONE (ARME3) | 8 | 64 |
| CHINQUAPIN (CACH2) | 12 | 35 |
| CANYON LIVE OAK (QUCH2) | 18 | 92 |
| PACIFIC DOGWOOD (CONU2) | 4 | 28 |
| SUGAR PINE (PILA) | 12 | 28 |
| BIGLEAF MAPLE (ACMA) | 7 | 35 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 21 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 64 |
| CANYON LIVE OAK (QUCH2) | 5 | 92 |
| CHINQUAPIN (CACH2) | 10 | 21 |
| SUGAR PINE (PILA) | 1 | 42 |
| PACIFIC MADRONE (ARME3) | 21 | 21 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 13 | 100 |
| POISON OAK (RHDI) | 4 | 35 |
| SALAL (GASH) | 21 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 28 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 42 |
| WILD ROSE (ROS) | 1 | 64 |
| CREEPING SNOWBERRY (SYMO) | 1 | 35 |
| RED HUCKLEBERRY (VAPA) | 1 | 28 |
| OCEANSPRAY (HODI) | 3 | 21 |
| WESTERN AZALEA (RHOC) | 5 | 21 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 50 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 28 |
| SWORDFERN (POMU1) | 2 | 78 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 71 |
| WESTERN MODESTY (WHMO) | 3 | 85 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 64 |
| VANILLA LEAF (ACTR) | 2 | 57 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 21 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 42 |
| STARFLOWER (TRLA3) | 1 | 28 |
| BEARGRASS (XETE) | 1 | 28 |
| IRIS (IRI) | 2 | 35 |
| HAWKWEED (HIAL) | 1 | 42 |
| TWINFLOWER (LIBOL) | 1 | 21 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 21 |
| MOUNTAIN DOGBANE (APPU) | 1 | 21 |
| TOOTHED WINTERGREEN (PYPID) | 1 | 21 |
| WESTERN FESCUE (FEOC1) | 1 | 21 |

Table 82. Environment and timber summary for the tanoak-canyon live oak-black oak/poison oak type (LIDE2-QUCH2-QUKE/RHDI) N=18.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2206 | 1040 | 3350 | 156 |
| SLOPE (%) | 47 | 10 | 65 | 4 |
| ASPECT | WEST SOUTH | | | |
| SOLAR RADIATION INDEX * | .493<br>7 | .406<br>0 | .591<br>10 | .021<br>1 |
| SURFACE ROCK | | | | |
| STAND AGE | 202 | 100 | 370 | 18 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6719 | 4948 | 9427 | 572 |
| BASAL AREA ($ft^2$) | 174 | 93 | 227 | 145 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1459 | 0 | 2633 | 2520 |
| BASAL AREA ($ft^2$) | 88 | 0 | 120 | 14 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 425 | 316 | 527 | 289 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 83. Soils summary for the tanoak-canyon live oak-black oak/poison oak type (LIDE2-QUCH2-QUKE/RHDI) N=18.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 12 | >40 |
| AWC (inches) | 3.9 | 1.5 | 6.4 |
| PARENT ROCK | schist<br>mafic<br>serpentine<br>greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 3 | 12 |
| COARSE FRAGMENT (%) | 31 | 10 | 48 |
| pH | 6.2 | 5.6 | 6.5 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown, reddish brown | | |
| TEXTURE | gl, cl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 17 | 76 |
| pH | 6.4 | 5.6 | 7.0 |
| COLOR | strong brown, dark yellowish brown, reddish brown, dark brown | | |
| TEXTURE | gl, gcl, vgl, kl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 84. Vegetation summary for the tanoak-canyon live oak-black oak/poison oak type (LIDE2-QUCH2-QUKE/RHDI) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 75 | 99 | 2 |
| GRASS COVER | 1 | 0 | 8 | 0 |
| HERB COVER | 4 | 1 | 10 | 1 |
| SHRUB COVER | 8 | 1 | 17 | 6 |
| TREE COVER | 86 | 65 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 38 | 100 |
| TANOAK (LIDE2) | 28 | 94 |
| PACIFIC MADRONE (ARME3) | 13 | 77 |
| CANYON LIVE OAK (QUCH2) | 12 | 94 |
| SUGAR PINE (PILA) | 13 | 66 |
| BLACK OAK (QUKE) | 8 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 94 |
| DOUGLAS-FIR (PSME) | 4 | 77 |
| CANYON LIVE OAK (QUCH2) | 4 | 77 |
| SUGAR PINE (PILA) | 1 | 55 |
| CHINQUAPIN (CACH2) | 2 | 22 |
| PACIFIC MADRONE (ARME3) | 1 | 22 |
| BLACK OAK (QUKE) | 1 | 38 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 12 | 83 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 55 |
| WILD ROSE (ROS) | 1 | 43 |
| HAZELNUT (COCOC) | 2 | 27 |
| CREEPING SNOWBERRY (SYMO) | 1 | 22 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 55 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 38 |
| SWORDFERN (POMU1) | 2 | 27 |
| STARFLOWER (TRLA3) | 1 | 22 |
| IRIS (IRI) | 1 | 33 |
| RAYLESS ARNICA (ARDI3) | 1 | 27 |
| HAWKWEED (HIAL) | 1 | 27 |
| WESTERN FESCUE (FEOC1) | 1 | 38 |

Table 85. Environment and timber summary for the tanoak-canyon live oak/poison oak type (LIDE2-QUCH2/RHDI) N=18.

| RANGER DISTRICT | UKONOM, GASQUET, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2252 | 1200 | 3400 | 148 |
| SLOPE (%) | 64 | 43 | 82 | 4 |
| ASPECT | S. EAST<br>S. WEST | | | |
| SOLAR RADIATION INDEX * | .462 | .290 | .583 | .026 |
| SURFACE ROCK | 8 | 2 | 11 | 2 |
| STAND AGE | 235 | 105 | 417 | 19 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6350 | 2426 | 9209 | 861 |
| BASAL AREA ($ft^2$) | 173 | 60 | 360 | 24 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1190 | 0 | 1902 | 283 |
| BASAL AREA ($ft^2$) | 73 | 0 | 160 | 16 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 362 | 254 | 504 | 37 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 86. Soils summary for the tanoak-canyon live oak/poison oak type (LIDE2-QUCH2/RHDI) N=18.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 31 | 14 | >40 |
| AWC (inches) | 2.9 | 2.0 | 4.5 |
| PARENT ROCK | greenstone<br>phyllite<br>sandstone<br>granite<br>serpentine | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 1 | 13 |
| COARSE FRAGMENT (%) | 50 | 25 | 95 |
| pH | 5.7 | 5.3 | 6.5 |
| COLOR | dark brown, dark yellowish brown, very dark brown, very dark grayish brown | | |
| TEXTURE | gl, xgl, cosl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 44 | 20 | 65 |
| pH | 6.1 | 5.8 | 6.8 |
| COLOR | dark brown, strong brown, dark yellowish brown, yellowish brown | | |
| TEXTURE | vgl, gl, gcl, sicl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 87. Vegetation summary for the tanoak-canyon live oak/poison oak type (LIDE2-QUCH2/RHDI) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 75 | 98 | 2 |
| GRASS COVER | <1 | 0 | 1 | 1 |
| HERB COVER | 9 | 1 | 15 | 2 |
| SHRUB COVER | 8 | 1 | 16 | 3 |
| TREE COVER | 82 | 65 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 34 | 100 |
| TANOAK (LIDE2) | 33 | 94 |
| PACIFIC MADRONE (ARME3) | 9 | 77 |
| CANYON LIVE OAK (QUCH2) | 30 | 100 |
| SUGAR PINE (PILA) | 8 | 44 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 66 |
| CANYON LIVE OAK (QUCH2) | 8 | 100 |
| SUGAR PINE (PILA) | 1 | 55 |
| PACIFIC MADRONE (ARME3) | 1 | 44 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 4 | 27 |
| POISON OAK (RHDI) | 5 | 100 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 61 |
| WILD ROSE (ROS) | 1 | 44 |
| CREEPING SNOWBERRY (SYMO) | 1 | 22 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 50 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 55 |
| SWORDFERN (POMU1) | 1 | 55 |
| WESTERN MODESTY (WHMO) | 8 | 55 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 33 |
| VANILLA LEAF (ACTR) | 1 | 33 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 27 |
| STARFLOWER (TRLA3) | 1 | 38 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 3 | 22 |
| IRIS (IRI) | 2 | 72 |
| RAYLESS ARNICA (ARDI3) | 1 | 22 |
| HAWKWEED (HIAL) | 1 | 22 |
| TRAILPLANT (ADBI) | 1 | 22 |
| MOUNTAIN DOGBANE (APPU) | 1 | 33 |

Table 88. Environment and timber summary for the tanoak-canyon live oak/dwarf Oregon-grape type (LIDE2-QUCH2/BENE1) N=13.

| RANGER DISTRICT | ORLEANS, GASQUET, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3217 | 2420 | 4120 | 175 |
| SLOPE (%) | 57 | 40 | 75 | 4 |
| ASPECT | WEST<br>N. EAST | | | |
| SOLAR RADIATION INDEX * | .422 | .301 | .599 | .034 |
| SURFACE ROCK | 34 | 1 | 80 | 8 |
| STAND AGE | 236 | 40 | 430 | 31 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10160 | 6343 | 14909 | 1017 |
| BASAL AREA ($ft^2$) | 285 | 160 | 387 | 32 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 534 | 129 | 1042 | 133 |
| BASAL AREA ($ft^2$) | 37 | 13 | 67 | 10 |
| SITE CLASS | 1 | | | |
| SITE INDEX | 175 | | | |
| STAND DENSITY INDEX | 469 | 305 | 585 | 41 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 89. Soils summary for the tanoak-canyon live oak/dwarf Oregon-grape type (LIDE2-QUCH2/BENE1) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 36 | 26 | >40 |
| AWC (inches) | 2.9 | 2.2 | 4.8 |
| PARENT ROCK | semischist<br>schist<br>mixed | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 2 | 14 |
| COARSE FRAGMENT (%) | 42 | 15 | 80 |
| pH | 5.9 | 5.4 | 6.5 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 56 | 30 | 90 |
| pH | 6.0 | 5.7 | 6.5 |
| COLOR | yellowish brown, strong brown, dark brown | | |
| TEXTURE | xgl, vgl, gcl, gsil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 90. Vegetation summary for the tanoak-canyon live oak/dwarf Oregon-grape type (LIDE2-QUCH2/BENE1) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 94 | 90 | 99 | 2 |
| GRASS COVER | <1 | 0 | 2 | <1 |
| HERB COVER | 5 | 1 | 20 | 4 |
| SHRUB COVER | 16 | 1 | 25 | 5 |
| TREE COVER | 89 | 70 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 63 | 100 |
| TANOAK (LIDE2) | 26 | 92 |
| PACIFIC MADRONE (ARME3) | 7 | 53 |
| CHINQUAPIN (CACH2) | 8 | 38 |
| CANYON LIVE OAK (QUCH2) | 13 | 92 |
| SUGAR PINE (PILA) | 4 | 30 |
| PACIFIC DOGWOOD (CONU2) | 4 | 38 |
| BIGLEAF MAPLE (ACMA) | 5 | 23 |
| WHITE FIR (ABCO) | 6 | 23 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 15 | 92 |
| DOUGLAS-FIR (PSME) | 2 | 61 |
| CANYON LIVE OAK (QUCH2) | 5 | 92 |
| WHITE FIR (ABCO) | 1 | 23 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 11 | 100 |
| TRAILING BLACKBERRY (RUUR) | 1 | 46 |
| WILD ROSE (ROS) | 2 | 68 |
| CREEPING SNOWBERRY (SYMO) | 1 | 38 |
| OREGON BOXWOOD (PAMY) | 1 | 23 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 3 | 23 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 53 |
| SWORDFERN (POMU1) | 2 | 53 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 76 |
| WESTERN MODESTY (WHMO) | 4 | 84 |
| WESTERN PRINCE'S PINE (CHUMO) | 7 | 61 |
| VANILLA LEAF (ACTR) | 1 | 61 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 84 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 38 |
| STARFLOWER (TRLA3) | 1 | 38 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 23 |
| IRIS (IRI) | 1 | 30 |
| BEARGRASS (XETE) | 1 | 23 |
| REDWOOD VIOLET (VISE) | 1 | 30 |
| TRAILPLANT (ADBI) | 1 | 30 |
| CORALROOT (COR2) | 1 | 23 |
| LEAFLESS WINTERGREEN (PYPIA) | 1 | 23 |

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Table 91. Environment and timber summary for the tanoak-chinquapin/salal type (LIDE2-CACH2/GASH) N=20.

| RANGER DISTRICT | ORLEANS, UKONOM, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2701 | 1840 | 3300 | 81 |
| SLOPE (%) | 37 | 5 | 75 | 5 |
| ASPECT | N. WEST<br>S. WEST | | | |
| SOLAR RADIATION INDEX * | .447 | .321 | .599 | .019 |
| SURFACE ROCK | 7 | 0 | 10 | 3 |
| STAND AGE | 244 | 70 | 617 | 31 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11197 | 9296 | 15410 | 1087 |
| BASAL AREA ($ft^2$) | 277 | 160 | 373 | 26 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 986 | 464 | 1877 | 157 |
| BASAL AREA ($ft^2$) | 65 | 40 | 133 | 12 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 514 | 405 | 626 | 42 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 92. Soils summary for the tanoak-chinquapin/salal type (LIDE2-CACH2/GASH) N=20.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 23 | >40 |
| AWC (inches) | 3.7 | 1.9 | 6.3 |
| PARENT ROCK | phyllite<br>schist<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 9 |
| COARSE FRAGMENT (%) | 37 | 10 | 60 |
| pH | 5.7 | 5.1 | 6.5 |
| COLOR | dark brown, dark yellowish brown, reddish brown | | |
| TEXTURE | gl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 36 | 8 | 55 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | dark yellowish brown, yellowish red, yellowish brown | | |
| TEXTURE | vgl, cl, gsil, gcl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 93. Vegetation summary for the tanoak-chinquapin/salal type (LIDE2-CACH2/GASH) N=20.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 90 | 99 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 4 | 1 | 9 | 1 |
| SHRUB COVER | 62 | 12 | 98 | 7 |
| TREE COVER | 90 | 75 | 98 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 49 | 100 |
| TANOAK (LIDE2) | 36 | 100 |
| PACIFIC MADRONE (ARME3) | 6 | 70 |
| CHINQUAPIN (CACH2) | 18 | 100 |
| SUGAR PINE (PILA) | 11 | 35 |
| PACIFIC DOGWOOD (CONU2) | 4 | 30 |
| BIGLEAF MAPLE (ACMA) | 6 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 13 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 95 |
| CANYON LIVE OAK (QUCH2) | 3 | 35 |
| SUGAR PINE (PILA) | 1 | 25 |
| CHINQUAPIN (CACH2) | 7 | 35 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 7 | 80 |
| SALAL (GASH) | 56 | 100 |
| TRAILING BLACKBERRY (RUUR) | 6 | 30 |
| WILD ROSE (ROS) | 1 | 20 |
| RED HUCKLEBERRY (VAPA) | 1 | 30 |
| EVERGREEN HUCKLEBERRY (VAOV) | 1 | 20 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 70 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 35 |
| SWORDFERN (POMU1) | 1 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 55 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 40 |
| VANILLA LEAF (ACTR) | 1 | 30 |
| BEARGRASS (XETE) | 1 | 40 |
| REDWOOD VIOLET (VISE) | 1 | 25 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 1 | 20 |

Table 94. Environment and timber summary for the tanoak-chinquapin/rhododendron-salal type (LIDE2-CACH2/RHMA-GASH) N=21.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2857 | 2460 | 3440 | 69 |
| SLOPE (%) | 46 | 10 | 80 | 4 |
| ASPECT | NORTH N. EAST | | | |
| SOLAR RADIATION INDEX * | .350 | .227 | .471 | .022 |
| SURFACE ROCK | 4 | 0 | 6 | 3 |
| STAND AGE | 309 | 100 | 450 | 23 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10139 | 4485 | 17826 | 1216 |
| BASAL AREA ($ft^2$) | 250 | 147 | 373 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 815 | 0 | 2228 | 141 |
| BASAL AREA ($ft^2$) | 65 | 0 | 147 | 8 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 492 | 262 | 683 | 28 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 95. Soils summary for the tanoak-chinquapin/rhododendron-salal type (LIDE2-CACH2/RHMA-GASH) N=21.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 21 | >40 |
| AWC (inches) | 3.4 | 2.1 | 5.5 |
| PARENT ROCK | phyllite greenstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 9 |
| COARSE FRAGMENT (%) | 40 | 20 | 75 |
| pH | 5.6 | 5.3 | 6.0 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 38 | 19 | 70 |
| pH | 6.0 | 5.4 | 6.5 |
| COLOR | yellowish brown, dark yellowish brown, light olive brown | | |
| TEXTURE | gl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 96. Vegetation summary for the tanoak-chinquapin/ rhododendron-salal type (LIDE2-CACH2/RHMA-GASH) N=21.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 99 | 95 | 99 | <1 |
| GRASS COVER | 0 | 0 | 1 | 0 |
| HERB COVER | 3 | 0 | 8 | <1 |
| SHRUB COVER | 86 | 70 | 95 | 4 |
| TREE COVER | 85 | 70 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 51 | 100 |
| TANOAK (LIDE2) | 27 | 100 |
| PACIFIC MADRONE (ARME3) | 8 | 47 |
| CHINQUAPIN (CACH2) | 21 | 100 |
| SUGAR PINE (PILA) | 5 | 28 |
| PACIFIC DOGWOOD (CONU2) | 4 | 28 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 17 | 90 |
| DOUGLAS-FIR (PSME) | 2 | 61 |
| CHINQUAPIN (CACH2) | 5 | 57 |
| PACIFIC MADRONE (ARME3) | 1 | 23 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 6 | 95 |
| SALAL (GASH) | 68 | 100 |
| EVERGREEN HUCKLEBERRY (VAOV) | 10 | 42 |
| RED HUCKLEBERRY (VAPA) | 2 | 28 |
| RHODODENDRON (RHMA) | 32 | 100 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 66 |
| SWORDFERN (POMU1) | 1 | 57 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 47 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 23 |
| VANILLA LEAF (ACTR) | 1 | 23 |
| BEARGRASS (XETE) | 1 | 61 |

Table 97. Environment and timber summary for the tanoak-chinquapin/rhododendron/beargrass type (LIDE2-CACH2/RHMA/XETE) N=12.

| RANGER DISTRICT | ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3214 | 2420 | 3700 | 112 |
| SLOPE (%) | 33 | 5 | 60 | 6 |
| ASPECT | N. WEST EAST | | | |
| SOLAR RADIATION INDEX * | .426 | .326 | .518 | .020 |
| SURFACE ROCK | 3 | 0 | 11 | 6 |
| STAND AGE | 225 | 45 | 431 | 36 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8802 | 5007 | 9579 | 1292 |
| BASAL AREA ($ft^2$) | 228 | 100 | 347 | 28 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 469 | 0 | 1267 | 159 |
| BASAL AREA ($ft^2$) | 31 | 0 | 70 | 9 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 374 | 327 | 514 | 28 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 98. Soils summary for the tanoak-chinquapin/rhododendron/ beargrass type (LIDE2-CACH2/RHMA/XETE) N=12.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 21 | >40 |
| AWC (inches) | 3.6 | 1.6 | 5.5 |
| PARENT ROCK | schist phyllite | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 10 |
| COARSE FRAGMENT (%) | 35 | 17 | 55 |
| pH | 5.6 | 5.0 | 6.5 |
| COLOR | dark brown, dark yellowish brown, dark grayish brown | | |
| TEXTURE | gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 13 | 60 |
| pH | 6.1 | 5.2 | 6.5 |
| COLOR | dark yellowish brown, yellowish brown, gray, light olive brown | | |
| TEXTURE | gl, cl, vstl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 99. Vegetation summary for the tanoak-chinquapin/ rhododendron/beargrass type (LIDE2-CACH2/RHMA/XETE) N=12.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 99 | 1 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 23 | 6 | 40 | 6 |
| SHRUB COVER | 37 | 15 | 70 | 6 |
| TREE COVER | 78 | 40 | 98 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 42 | 100 |
| TANOAK (LIDE2) | 11 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 50 |
| CHINQUAPIN (CACH2) | 23 | 100 |
| CANYON LIVE OAK (QUCH2) | 8 | 25 |
| SUGAR PINE (PILA) | 18 | 50 |
| KNOBCONE PINE (PIAT1) | 4 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 7 | 91 |
| DOUGLAS-FIR (PSME) | 3 | 83 |
| CANYON LIVE OAK (QUCH2) | 1 | 25 |
| SUGAR PINE (PILA) | 1 | 41 |
| CHINQUAPIN (CACH2) | 5 | 83 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 4 | 25 |
| SALAL (GASH) | 13 | 33 |
| CREEPING SNOWBERRY (SYMO) | 1 | 25 |
| RED HUCKLEBERRY (VAPA) | 5 | 83 |
| RHODODENDRON (RHMA) | 23 | 100 |
| HUCKLEBERRY OAK (QUVA) | 13 | 25 |
| OREGON BOXWOOD (PAMY) | 2 | 25 |
| SADLER OAK (QUSA) | 4 | 66 |
| SLENDER SALAL (GAOV) | 4 | 33 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 2 | 91 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 33 |
| WESTERN PRINCE'S PINE (CHUMO) | 2 | 66 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 25 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 58 |
| BEARGRASS (XETE) | 15 | 100 |
| TWINFLOWER (LIBOL) | 3 | 50 |

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Table 100. Environment and timber summary for the tanoak-chinquapin/brackenfern type (LIDE2-CACH2/PTAQL) N=5.

| RANGER DISTRICT | UKONOM, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3340 | 3160 | 3880 | 137 |
| SLOPE (%) | 36 | 25 | 50 | 4 |
| ASPECT | S. EAST | | | |
| SOLAR RADIATION INDEX * | .540 | .508 | .559 | .009 |
| SURFACE ROCK | 1 | 0 | 2 | 1 |
| STAND AGE | 203 | 72 | 294 | 41 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8164 | 6134 | 11332 | 1141 |
| BASAL AREA ($ft^2$) | 196 | 147 | 273 | 31 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1263 | 155 | 2243 | 352 |
| BASAL AREA ($ft^2$) | 76 | 27 | 120 | 17 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 407 | 382 | 448 | 32 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 101. Soils summary for the tanoak-chinquapin/brackenfern type (LIDE2-CACH2/PTAQL) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 32 | 22 | >40 |
| AWC (inches) | 2.6 | 1.7 | 3.0 |
| PARENT ROCK | schist mafic | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 9 |
| COARSE FRAGMENT (%) | 38 | 15 | 54 |
| pH | 6.0 | 5.4 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | vgl, xgl, gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 33 | 20 | 46 |
| pH | 5.8 | 5.4 | 6.7 |
| COLOR | strong brown, dark yellowish brown | | |
| TEXTURE | gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 102. Vegetation summary for the tanoak-chinquapin/brackenfern type (LIDE2-CACH2/PTAQL) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 90 | 99 | 2 |
| GRASS COVER | <1 | 0 | 1 | 4 |
| HERB COVER | 8 | 1 | 10 | 4 |
| SHRUB COVER | 3 | 1 | 6 | 1 |
| TREE COVER | 94 | 90 | 99 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 39 | 100 |
| TANOAK (LIDE2) | 28 | 100 |
| PACIFIC MADRONE (ARME3) | 11 | 80 |
| CHINQUAPIN (CACH2) | 29 | 100 |
| SUGAR PINE (PILA) | 17 | 60 |
| PACIFIC DOGWOOD (CONU2) | 4 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 6 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 100 |
| CANYON LIVE OAK (QUCH2) | 1 | 20 |
| SUGAR PINE (PILA) | 1 | 60 |
| CHINQUAPIN (CACH2) | 4 | 100 |
| PACIFIC DOGWOOD (CONU2) | 5 | 20 |
| WHITE FIR (ABCO) | 1 | 20 |
| **SHRUBS** | | |
| TRAILING BLACKBERRY (RUUR) | 1 | 40 |
| WILD ROSE (ROS) | 1 | 40 |
| CREEPING SNOWBERRY (SYMO) | 1 | 40 |
| RED HUCKLEBERRY (VAPA) | 2 | 20 |
| VINE MAPLE (ACCI) | 5 | 20 |
| HUCKLEBERRY OAK (QUVA) | 2 | 20 |
| SADLER OAK (QUSA) | 1 | 20 |
| STREAMSIDE SNOWBERRY (SYRI) | 1 | 20 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 100 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 80 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 40 |
| WESTERN MODESTY (WHMO) | 2 | 40 |
| WESTERN PRINCE'S PINE (CHUMO) | 67 | 80 |
| VANILLA LEAF (ACTR) | 1 | 20 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 80 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 20 |
| STARFLOWER (TRLA3) | 1 | 20 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 60 |
| IRIS (IRI) | 1 | 60 |
| BEARGRASS (XETE) | 21 | 80 |
| RAYLESS ARNICA (ARDI3) | 1 | 20 |
| REDWOOD VIOLET (VISE) | 1 | 20 |
| TWINFLOWER (LIBOL) | 1 | 20 |
| MOUNTAIN DOGBANE (APPU) | 1 | 20 |
| CANDYSTICK (ALVI2) | 1 | 20 |
| NARROW-LEAVED BOISDUVALIA (BOST1) | 1 | 20 |
| WESTERN FESCUE (FEOC1) | 1 | 20 |

Table 103. Environment and timber summary for the tanoak-chinquapin/dwarf Oregon-grape type (LIDE2-CACH2/BENE1) N=34.

| RANGER DISTRICT | UKONOM, ORLEANS, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2849 | 1820 | 3540 | 81 |
| SLOPE (%) | 45 | 18 | 77 | 4 |
| ASPECT | N. WEST<br>EAST<br>S. EAST | | | |
| SOLAR RADIATION INDEX * | .411 | .260 | .587 | .018 |
| SURFACE ROCK | 8 | 0 | 30 | 2 |
| STAND AGE | 242 | 67 | 509 | 18 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7820 | 3425 | 11547 | 597 |
| BASAL AREA ($ft^2$) | 192 | 80 | 307 | 14 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1401 | 155 | 2936 | 175 |
| BASAL AREA ($ft^2$) | 82 | 13 | 160 | 10 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 427 | 320 | 573 | 15 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 104. Soils summary for the tanoak-chinquapin/dwarf Oregon-grape type (LIDE2-CACH2/BENE1) N=34.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 24 | >40 |
| AWC (inches) | 4.0 | 1.0 | 6.6 |
| PARENT ROCK | phyllite<br>granite<br>schist<br>greenstone<br>mafic<br>sandstone | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 2 | 16 |
| COARSE FRAGMENT (%) | 27 | 5 | 50 |
| pH | 6.23 | 5.0 | 7.0 |
| COLOR | dark brown, dark yellowish brown, reddish brown, yellowish brown | | |
| TEXTURE | gl, sl, l, cosl, cl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 30 | 5 | 57 |
| pH | 6.25 | 5.0 | 7.0 |
| COLOR | yellowish brown, dark yellowish brown, yellowish red, strong brown, dark brown, red | | |
| TEXTURE | gcl, gl, cl, vgl, gscl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 105. Vegetation summary for the tanoak-chinquapin/dwarf Oregon-grape type (LIDE2-CACH2/BENE1) N=34.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 93 | 80 | 100 | <1 |
| GRASS COVER | <1 | 0 | 1 | <1 |
| HERB COVER | 12 | 1 | 30 | 3 |
| SHRUB COVER | 17 | 1 | 50 | 3 |
| TREE COVER | 86 | 65 | 98 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 43 | 100 |
| TANOAK (LIDE2) | 35 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 52 |
| CHINQUAPIN (CACH2) | 9 | 100 |
| SUGAR PINE (PILA) | 7 | 23 |
| PACIFIC DOGWOOD (CONU2) | 7 | 32 |
| BLACK OAK (QUKE) | 6 | 20 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 26 | 100 |
| DOUGLAS-FIR (PSME) | 2 | 67 |
| CANYON LIVE OAK (QUCH2) | 2 | 20 |
| SUGAR PINE (PILA) | 1 | 29 |
| CHINQUAPIN (CACH2) | 8 | 47 |
| PACIFIC DOGWOOD (CONU2) | 2 | 35 |
| **SHRUBS** | | |
| DWARF OREGON-GRAPE (BENE1) | 10 | 100 |
| POISON OAK (RHDI) | 4 | 20 |
| TRAILING BLACKBERRY (RUUR) | 1 | 29 |
| WILD ROSE (ROS) | 1 | 61 |
| HAZELNUT (COCOC) | 3 | 23 |
| CREEPING SNOWBERRY (SYMO) | 1 | 38 |
| RED HUCKLEBERRY (VAPA) | 4 | 20 |
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 61 |
| LITTLE PRINCE'S PINE (CHME2) | 2 | 52 |
| SWORDFERN (POMU1) | 1 | 29 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 44 |
| WESTERN MODESTY (WHMO) | 4 | 41 |
| WESTERN PRINCE'S PINE (CHUMO) | 5 | 50 |
| VANILLA LEAF (ACTR) | 5 | 58 |
| WHITE-VEINED WINTERGREEN (PYPI) | 1 | 52 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 50 |
| STARFLOWER (TRLA3) | 1 | 26 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 32 |
| IRIS (IRI) | 1 | 20 |
| TWINFLOWER (LIBOL) | 6 | 20 |

Table 106. Environment and timber summary for the tanoak-canyon live oak/evergreen huckleberry/salal type (LIDE2-CACH2/VAOV-GASH) N=4.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2090 | 1750 | 2470 | 163 |
| SLOPE (%) | 22 | 5 | 40 | 8 |
| ASPECT | SOUTH | | | |
| SOLAR RADIATION INDEX * | .474 | .438 | .500 | .014 |
| SURFACE ROCK | 2 | 0 | 6 | 2 |
| STAND AGE | 224 | 71 | 376 | 70 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5293 | 4925 | 5661 | 477 |
| BASAL AREA ($ft^2$) | 167 | 147 | 187 | 20 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 890 | 769 | 1010 | 220 |
| BASAL AREA ($ft^2$) | 66 | 53 | 80 | 17 |
| SITE CLASS | 2 | | | |
| SITE INDEX | 150 | | | |
| STAND DENSITY INDEX | 448 | 446 | 450 | 2 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

Table 107. Soils summary for the tanoak-canyon live oak/evergreen huckleberry-salal type (LIDE2-CACH2/VAOV-GASH) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | | | |
| DEPTH ** (inches) | 38 | 27 | 41 |
| AWC (inches) | 5.3 | 3.6 | 6.1 |
| PARENT ROCK | greenstone schist | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 3 | 8 |
| COARSE FRAGMENT (%) | 20 | 20 | 20 |
| pH | 6.5 | 6.0 | 7.0 |
| COLOR | reddish brown, dark reddish brown | | |
| TEXTURE | gl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 17 | 13 | 24 |
| pH | 6.3 | 5.7 | 7.5 |
| COLOR | red, yellowish red | | |
| TEXTURE | gcl, sil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 108. Vegetation summary for the tanoak-canyon live oak/evergreen huckleberry-salal type (LIDE2-CACH2/VAOV-GASH) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 90 | 99 | 2 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 5 | 1 | 11 | 2 |
| SHRUB COVER | 54 | 30 | 84 | 12 |
| TREE COVER | 90 | 85 | 97 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 36 | 100 |
| TANOAK (LIDE2) | 29 | 100 |
| PACIFIC MADRONE (ARME3) | 4 | 50 |
| CHINQUAPIN (CACH2) | 17 | 100 |
| CANYON LIVE OAK (QUCH2) | 1 | 50 |
| SUGAR PINE (PILA) | 27 | 75 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| PORT-ORFORD CEDAR (CHLA) | 8 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| TANOAK (LIDE2) | 8 | 100 |
| DOUGLAS-FIR (PSME) | 1 | 100 |
| CANYON LIVE OAK (QUCH2) | 1 | 25 |
| SUGAR PINE (PILA) | 1 | 25 |
| CHINQUAPIN (CACH2) | 3 | 100 |
| PACIFIC DOGWOOD (CONU2) | 1 | 25 |
| PACIFIC YEW (TABR) | 1 | 25 |
| PACIFIC MADRONE (ARME3) | 1 | 25 |
| PORT-ORFORD CEDAR (CHLA) | 3 | 25 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 50 |
| SALAL (GASH) | 15 | 75 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| WILD ROSE (ROS) | 1 | 25 |
| EVERGREEN HUCKLEBERRY (VAOV) | 38 | 100 |
| RED HUCKLEBERRY (VAPA) | 8 | 25 |
| RHODODENDRON (RHMA) | 3 | 75 |
| SLENDER SALAL (GAOV) | 5 | 25 |
| PINEMAT MANZANITA (ARNE2) | 2 | 25 |
| GREENLEAF MANZANITA (ARPA9) | 1 | 25 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| BRACKENFERN (PTAQL) | 1 | 75 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 50 |
| WESTERN PRINCE'S PINE (CHUMO) | 1 | 25 |
| IRIS (IRI) | 1 | 25 |
| BEARGRASS (XETE) | 4 | 75 |
| REDWOOD VIOLET (VISE) | 1 | 25 |
| SMALL INSIDE-OUT FLOWER (VAPL) | 1 | 75 |
| SPOTTED CORALROOT (COST1) | 1 | 25 |
| PINEFOOT (PICA) | 1 | 25 |
| SIERRA MILKWORT (POCO6) | 1 | 25 |

Appendix S. List of plant species identified in the tanoak series with summary statistics.

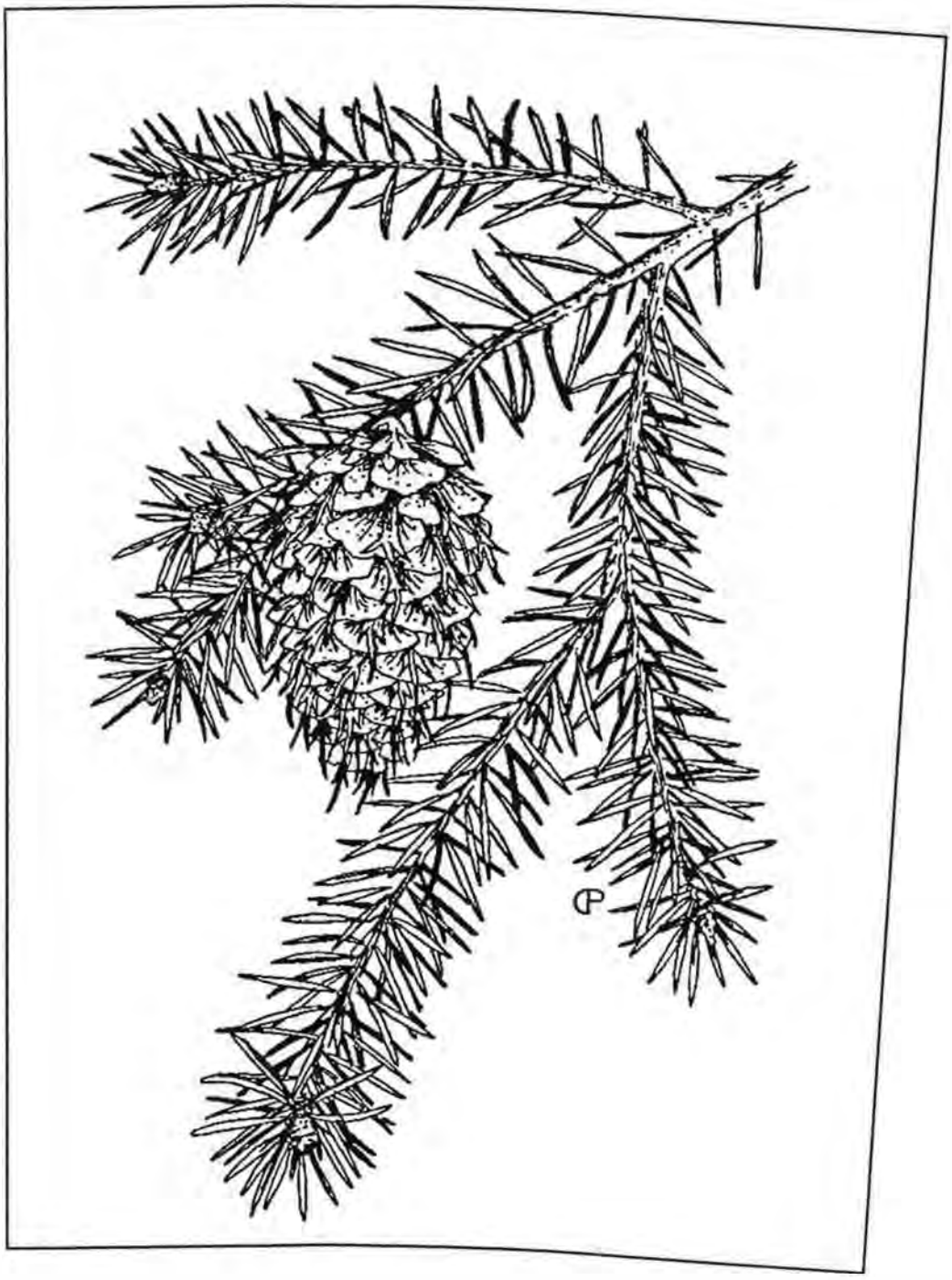
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Overstory Trees** | | | | | | | | | |
| Pseudotsuga menziesii | 98% | 575 | 1 | 97 | 96 | 44.4 | 18.7 | .8 | 1.5 |
| Lithocarpus densiflora | 96% | 563 | 1 | 90 | 89 | 33.4 | 23.0 | 1.0 | 1.9 |
| Arbutus menziesii | 56% | 331 | 1 | 50 | 49 | 8.3 | 7.7 | .4 | .8 |
| Castanopsis chrysophylla | 35% | 205 | 1 | 65 | 64 | 12.6 | 12.9 | .9 | 1.8 |
| Cornus nutallii | 28% | 167 | 1 | 30 | 29 | 4.6 | 4.2 | .3 | .6 |
| Quercus chrysolepis | 28% | 167 | 1 | 80 | 79 | 13.2 | 15.3 | 1.2 | 2.3 |
| Pinus lambertiana | 26% | 157 | 1 | 50 | 49 | 9.1 | 9.2 | .7 | 1.4 |
| Acer macrophyllum | 21% | 125 | 1 | 45 | 44 | 7.9 | 7.5 | .7 | 1.3 |
| Chamaecyparis lawsoniana | 15% | 93 | 1 | 65 | 64 | 27.0 | 17.6 | 1.8 | 3.6 |
| Quercus kelloggii | 11% | 68 | 2 | 35 | 33 | 6.1 | 5.9 | .7 | 1.4 |
| Taxus brevifolia | 9% | 57 | 1 | 20 | 19 | 5.1 | 4.5 | .6 | 1.2 |
| Umbellularia californica | 7% | 42 | 1 | 50 | 49 | 10.9 | 14.1 | 2.2 | 4.4 |
| Libocedrus decurrens | 5% | 30 | 1 | 30 | 29 | 8.5 | 7.8 | 1.4 | 2.9 |
| Alnus oregona | 3% | 23 | 1 | 25 | 24 | 7.7 | 7.3 | 1.5 | 3.2 |
| Abies concolor | 3% | 21 | 1 | 15 | 14 | 3.0 | 3.3 | .7 | 1.5 |
| Pinus attenuata | 3% | 18 | 1 | 25 | 24 | 6.6 | 7.3 | 1.7 | 3.6 |
| Tsuga heterophylla | 1% | 11 | 2 | 25 | 23 | 11.7 | 8.0 | 2.4 | 5.4 |
| Pinus ponderosa | 1% | 7 | 5 | 30 | 25 | 10.7 | 8.9 | 3.4 | 8.2 |
| Alnus rhombifolia | 1% | 6 | 2 | 55 | 53 | 17.5 | 21.1 | 8.6 | 22.1 |
| Pinus jeffreyi | 0% | 5 | 1 | 15 | 14 | 5.2 | 5.6 | 2.5 | 6.9 |
| Sequoia sempervirens | 0% | 4 | 1 | 40 | 39 | 16.0 | 18.1 | 9.1 | 28.8 |
| Fraxinus latifolia | 0% | 2 | 5 | 8 | 3 | 6.5 | 2.1 | 1.5 | 19.1 |
| Picea breweriana | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Quercus garryana | 0% | 2 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Salix sp. | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Pinus monticola | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Rhamnus purshiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Thuja plicata | 0% | 1 | 20 | 20 | 0 | 20.0 | .0 | .0 | .0 |
| **Understory Trees** | | | | | | | | | |
| Lithocarpus densiflorus | 98% | 572 | 1 | 80 | 79 | 16.8 | 15.5 | .6 | 1.3 |
| Pseudotsuga menziesii | 67% | 392 | 1 | 20 | 19 | 2.0 | 2.3 | .1 | .2 |
| Quercus chrysolepis | 40% | 239 | 1 | 25 | 24 | 3.5 | 4.1 | .3 | .5 |
| Castanopsis chrysophylla | 25% | 148 | 1 | 25 | 24 | 4.1 | 5.4 | .4 | .9 |
| Pinus lambertiana | 23% | 135 | 1 | 3 | 2 | 1.1 | .4 | .0 | .1 |
| Cornus nuttallii | 19% | 116 | 1 | 15 | 14 | 2.1 | 2.0 | .2 | .4 |
| Chamaecyparis lawsoniana | 14% | 86 | 1 | 10 | 9 | 2.5 | 2.0 | .2 | .4 |
| Taxus brevifolia | 14% | 86 | 1 | 15 | 14 | 1.5 | 1.7 | .2 | .4 |
| Umbellularia californica | 13% | 78 | 1 | 25 | 24 | 2.9 | 3.9 | .4 | .9 |
| Arbutus menziesii | 10% | 63 | 1 | 10 | 9 | 1.4 | 1.4 | .2 | .4 |
| Abies concolor | 6% | 40 | 1 | 5 | 4 | 1.3 | .9 | .1 | .3 |
| Libocedrus decurrens | 6% | 36 | 1 | 10 | 9 | 1.8 | 1.8 | .3 | .6 |
| Acer macrophyllum | 5% | 30 | 1 | 2 | 1 | 1.2 | .4 | .1 | .1 |
| Quercus kelloggii | 4% | 26 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Alnus oregona | 2% | 14 | 1 | 5 | 4 | 1.8 | 1.4 | .4 | .8 |
| Rhamnus purshiana | 1% | 9 | 1 | 5 | 4 | 1.8 | 1.4 | .5 | 1.1 |
| Tsuga heterophylla | 1% | 8 | 1 | 5 | 4 | 1.9 | 1.4 | .5 | 1.1 |
| Pinus ponderosa | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sequoia sempervirens | 0% | 3 | 1 | 4 | 3 | 2.3 | 1.5 | .9 | 3.8 |
| Alnus rhombifolia | 0% | 2 | 2 | 5 | 3 | 3.5 | 2.1 | 1.5 | 19.1 |
| Pinus attenuata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus monticola | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Thuja plicata | 0% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Fraxinus latifolia | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Picea breweriana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Salix sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tsuga mertensiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Shrubs** | | | | | | | | | |
| Berberis nervosa | 59% | 347 | 1 | 80 | 79 | 8.3 | 11.8 | .6 | 1.2 |
| Gaultheria shallon | 46% | 270 | 1 | 98 | 97 | 27.2 | 27.7 | 1.7 | 3.3 |
| Rhus diversiloba | 34% | 199 | 1 | 80 | 79 | 3.4 | 7.4 | .5 | 1.0 |
| Vaccinium ovatum | 32% | 192 | 1 | 98 | 97 | 30.7 | 28.8 | 2.1 | 4.1 |
| Rubus ursinus | 29% | 174 | 1 | 5 | 4 | 1.1 | .4 | .0 | .1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Rosa gymnocarpa | 28% | 165 | 1 | 8 | 7 | 1.4 | 1.1 | .1 | .2 |
| Corylus cornuta californica | 25% | 151 | 1 | 35 | 34 | 2.7 | 3.4 | .3 | .5 |
| Vaccinium parvifolium | 22% | 130 | 1 | 20 | 19 | 3.4 | 3.9 | .3 | .7 |
| Lonicera hispidula vacillans | 20% | 121 | 1 | 10 | 9 | 1.6 | 1.3 | .1 | .2 |
| Rhododendron macrophyllum | 21% | 123 | 1 | 80 | 79 | 15.6 | 18.2 | 1.6 | 3.2 |
| Rosa sp. | 18% | 108 | 1 | 4 | 3 | 1.1 | .5 | .0 | .1 |
| Symphoricarpos mollis | 18% | 105 | 1 | 8 | 7 | 1.2 | .8 | .1 | .2 |
| Acer circinatum | 12% | 70 | 1 | 96 | 95 | 14.6 | 19.7 | 2.4 | 4.7 |
| Holodiscus discolor | 6% | 36 | 1 | 7 | 6 | 1.8 | 1.4 | .2 | .5 |
| Rubus parviflorus | 4% | 29 | 1 | 3 | 2 | 1.3 | .5 | .1 | .2 |
| Quercus vaccinifolia | 4% | 27 | 1 | 25 | 24 | 5.5 | 6.2 | 1.2 | 2.5 |
| Rubus leucodermis | 3% | 23 | 1 | 15 | 14 | 1.9 | 3.0 | .6 | 1.3 |
| Rhododendron occidentale | 3% | 22 | 1 | 45 | 44 | 8.4 | 10.3 | 2.2 | 4.6 |
| Paxistima myrsinites | 3% | 21 | 1 | 4 | 3 | 1.3 | .7 | .2 | .3 |
| Quercus sadleriana | 3% | 19 | 1 | 10 | 9 | 2.2 | 2.2 | .5 | 1.1 |
| Ceanothus velutinus | 2% | 15 | 1 | 60 | 59 | 11.7 | 17.3 | 4.5 | 9.6 |
| Symphoricarpos rivularis | 2% | 14 | 1 | 4 | 3 | 1.8 | 1.1 | .3 | .6 |
| Amaranthus albus | 2% | 13 | 1 | 8 | 7 | 2.0 | 2.1 | .6 | 1.3 |
| Arctostaphylos viscida | 2% | 12 | 1 | 90 | 89 | 10.6 | 25.4 | 7.3 | 16.1 |
| Arctostaphylos patula | 1% | 10 | 1 | 20 | 19 | 3.5 | 5.9 | 1.9 | 4.2 |
| Berberis aquifolium | 1% | 10 | 1 | 2 | 1 | 1.3 | .5 | .2 | .3 |
| Ceanothus integerrimus | 1% | 10 | 1 | 15 | 14 | 2.7 | 4.3 | 1.4 | 3.1 |
| Gaultheria ovatifolia | 1% | 10 | 2 | 7 | 5 | 3.4 | 1.9 | .6 | 1.4 |
| Berberis repens | 1% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes sp. | 1% | 8 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Arctostaphylos nevadensis | 1% | 7 | 1 | 24 | 23 | 5.4 | 8.3 | 3.1 | 7.7 |
| Berberis pumila | 1% | 7 | 1 | 2 | 1 | 1.6 | .5 | .2 | .5 |
| Rhamnus californica | 1% | 7 | 1 | 15 | 14 | 3.4 | 5.2 | 2.0 | 4.8 |
| Acer glabrum torreyi | 1% | 6 | 1 | 2 | 1 | 1.3 | .5 | .2 | .5 |
| Rubus sp. | 1% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier florida | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos canescens | 0% | 4 | 1 | 2 | 1 | 1.5 | .6 | .3 | .9 |
| Arctostaphylos columbiana | 0% | 4 | 1 | 2 | 1 | 1.5 | .6 | .3 | .9 |
| Euonymus occidentalis | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lithocarpus densiflorus ech. | 0% | 4 | 1 | 20 | 19 | 7.8 | 8.4 | 4.2 | 13.3 |
| Vaccinium membranaceum | 0% | 4 | 1 | 3 | 2 | 1.5 | 1.0 | .5 | 1.6 |
| Rubus spectabilis | 0% | 3 | 1 | 2 | 1 | 1.7 | .6 | .3 | 1.4 |
| Ledum glandulosum | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Berberis piperiana | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Myrica californica | 0% | 2 | 1 | 4 | 3 | 2.5 | 2.1 | 1.5 | 19.1 |
| Osmaronia cerasiformis | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Physocarpus capitatus | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes lobbii | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes sanguineum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sambucus caerulea | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Symphoricarpos sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Alnus sinuata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Amelanchier pallida | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aralia californica | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Arctostaphylos sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Baccharis pilularis consang. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus prostratus | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Garrya buxifolia | 0% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Garrya fremontii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heteromeles arbutifolia | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lonicera ciliosa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Philadelphus lewisii calif. | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Prunus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ribes bracteosum | 0% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Rosa nutkana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus procerus | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Symphoricarpos hesperius | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vaccinium scoparium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Polystichum munitum | 55% | 325 | 1 | 45 | 44 | 3.5 | 6.0 | .3 | .7 |
| Pteridium aquilinum lanugin. | 49% | 291 | 1 | 15 | 14 | 1.4 | 1.3 | .1 | .1 |
| Goodyera oblongifolia | 44% | 259 | 1 | 2 | 1 | 1.0 | .1 | .0 | .0 |
| Whipplea modesta | 40% | 238 | 1 | 70 | 69 | 3.8 | 7.6 | .5 | 1.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Chimaphila menziesii | 39% | 229 | 1 | 10 | 9 | 1.2 | 1.2 | .1 | .2 |
| Chimaphila umbellata occid. | 35% | 206 | 1 | 43 | 42 | 2.5 | 4.0 | .3 | .5 |
| Achlys triphylla | 34% | 204 | 1 | 55 | 54 | 2.3 | 4.7 | .3 | .6 |
| Disporum hookeri | 28% | 167 | 1 | 2 | 1 | 1.0 | .2 | .0 | .0 |
| Trientalis latifolia | 27% | 163 | 1 | 4 | 3 | 1.1 | .4 | .0 | .1 |
| Pyrola picta | 26% | 152 | 1 | 2 | 1 | 1.0 | .1 | .0 | .0 |
| Vancouveria hexandra | 22% | 130 | 1 | 15 | 14 | 1.8 | 2.0 | .2 | .3 |
| Xerophyllum tenax | 21% | 127 | 1 | 45 | 44 | 3.3 | 7.2 | .6 | 1.2 |
| Iris sp. | 20% | 119 | 1 | 4 | 3 | 1.2 | .5 | .0 | .1 |
| Linnaea borealis longiflora | 16% | 95 | 1 | 50 | 49 | 4.9 | 7.2 | .7 | 1.5 |
| Viola sempervirens | 15% | 92 | 1 | 5 | 4 | 1.3 | .7 | .1 | .1 |
| Vancouveria planipetala | 15% | 90 | 1 | 10 | 9 | 1.6 | 1.4 | .2 | .3 |
| Trillium ovatum | 12% | 70 | 1 | 2 | 1 | 1.1 | .3 | .0 | .1 |
| Arnica discoidea | 10% | 62 | 1 | 3 | 2 | 1.2 | .5 | .1 | .1 |
| Hieracium albiflorum | 10% | 61 | 1 | 4 | 3 | 1.2 | .5 | .1 | .1 |
| Oxalis oregana | 10% | 60 | 1 | 35 | 34 | 4.9 | 6.2 | .8 | 1.6 |
| Adenocaulon bicolor | 8% | 52 | 1 | 24 | 23 | 1.6 | 3.2 | .4 | .9 |
| Smilacina racemosa amplex. | 8% | 52 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Galium triflorum | 6% | 37 | 1 | 3 | 2 | 1.1 | .4 | .1 | .1 |
| Apocynum pumilum | 5% | 33 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Viola glabella | 4% | 28 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trillium rivale | 4% | 25 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Campanula prenanthoides | 4% | 24 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Dentaria californica | 3% | 23 | 1 | 4 | 3 | 1.3 | .8 | .2 | .3 |
| Corallorhiza maculata | 3% | 22 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Boschniakia strobilacea | 3% | 21 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium sp. | 3% | 21 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris chrysophylla | 3% | 21 | 1 | 20 | 19 | 2.0 | 4.1 | .9 | 1.9 |
| Calypso bulbosa | 3% | 20 | 1 | 2 | 1 | 1.1 | .2 | .0 | .1 |
| Pyrola picta aphylla | 3% | 20 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza sp. | 2% | 17 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Asarum caudatum | 2% | 14 | 1 | 7 | 6 | 2.2 | 1.8 | .5 | 1.1 |
| Corallorhiza striata | 2% | 16 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola picta dentata | 2% | 16 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apocynum sp. | 2% | 14 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Adiantum pedatum aleuticum | 2% | 12 | 1 | 4 | 3 | 2.0 | 1.0 | .3 | .7 |
| Lilium sp. | 2% | 12 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Blechnum spicant | 1% | 11 | 1 | 30 | 29 | 7.0 | 10.0 | 3.0 | 6.7 |
| Allotropa virgata | 1% | 11 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium aparine | 1% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola lobata | 1% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Woodwardia fimbriata | 1% | 10 | 1 | 5 | 4 | 1.7 | 1.3 | .4 | 1.0 |
| Aralia californica | 1% | 9 | 1 | 5 | 4 | 1.9 | 1.4 | .5 | 1.0 |
| Corallorhiza mertensiana | 1% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polypodium glycyrrhiza | 1% | 9 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia sp. | 1% | 9 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Asarum hartwegii | 1% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eburophyton austinae | 1% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lilium washingtonianum purpurea | 1% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polypodium californicum | 1% | 8 | 1 | 8 | 7 | 2.0 | 2.4 | .9 | 2.0 |
| Viola sp. | 1% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Kelloggia galioides | 1% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 1% | 7 | 1 | 3 | 2 | 1.3 | .8 | .3 | .7 |
| Pityopus californicus | 1% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina sp. | 1% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anemone deltoidea | 1% | 6 | 1 | 3 | 2 | 1.5 | .8 | .3 | .9 |
| Campanula scouleri | 1% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Osmorhiza chilensis | 1% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Phlox adsurgens | 1% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Polystichum munitum imbricans | 1% | 6 | 1 | 2 | 1 | 1.3 | .5 | .2 | .5 |
| Pterospora andromedea | 1% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina racemosa | 1% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Apocynum androsaemifolium | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Disporum smithii | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Disporum sp. | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Habenaria elegans | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Habenaria unalascensis | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hemitomes congestum | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus crassifolius | 0% | 5 | 1 | 3 | 2 | 1.6 | .9 | .4 | 1.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Madia madioides | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina stellata | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Stellaria jamesiana | 0% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tiarella unifoliata | 0% | 5 | 1 | 10 | 9 | 3.2 | 3.8 | 1.7 | 4.8 |
| Vicia americana oregana | 0% | 5 | 1 | 15 | 14 | 5.6 | 6.0 | 2.7 | 7.4 |
| Arnica sp. | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Athyrium filix-femina calif | 0% | 4 | 1 | 12 | 11 | 6.0 | 5.8 | 2.9 | 9.3 |
| Cynoglossum grande | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium californicum | 0% | 4 | 1 | 3 | 2 | 1.5 | 1.0 | .5 | 1.6 |
| Listera caurina | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lupinus sp. | 0% | 4 | 1 | 4 | 3 | 1.8 | 1.5 | .8 | 2.4 |
| Polygala cornuta | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola secunda | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia californica | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Actaea rubra arguta | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Agastache urticifolia | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clintonia uniflora | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Collomia heterophylla | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium ambiguum | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Heuchera micrantha pacifica | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Iris innominata | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Madia sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Mitella sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Montia perfoliata | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Polygala californica | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola asarifolia purpurea | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sarcodes sanguinea | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Asarum sp. | 0% | 2 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Boisduvalia stricta | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus polymorphus | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cypripedium fasciculatum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Deschampsia caespitosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dryopteris arguta | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Equisetum arvense | 0% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Heuchera micrantha erubesce | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris tenuissima | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lomatium sp. | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Monotropa hypopithys | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Onychium densum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pleuricospora fimbriolata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Saxifraga sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sedum sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Torilis japonica | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Festuca occidentalis | 8% | 50 | 1 | 3 | 2 | 1.2 | .4 | .1 | .1 |
| Festuca sp. perennial | 3% | 20 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hierochloe occidentalis | 3% | 21 | 1 | 5 | 4 | 1.7 | 1.0 | .2 | .5 |
| Festuca californica | 3% | 18 | 1 | 75 | 74 | 9.6 | 17.9 | 4.2 | 8.9 |
| Carex sp. | 2% | 17 | 1 | 5 | 4 | 1.5 | 1.0 | .2 | .5 |
| Bromus sp. | 2% | 10 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Festuca sp. | 1% | 9 | 1 | 2 | 1 | 1.2 | .4 | .1 | .3 |
| Festuca subulata | 1% | 9 | 1 | 5 | 4 | 1.9 | 1.5 | .5 | 1.2 |
| Festuca idahoensis | 0% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Luzula sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Luzula comosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica subulata | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus carinatus | 0% | 1 | 3 | 3 | 0 | 3.0 | .0 | .0 | .0 |
| Bromus suksdorfii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Calamagrostis koelerioides | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Elymus glaucus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca arundinacea | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Festuca rubra | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |

# DOUGLAS-FIR SERIES



# Douglas-fir Series

**Distribution/Environment**

The Douglas-fir series covers approximately 200,000 acres on the Six Rivers National Forest and the west side of the Klamath National Forest. It was sampled with 368 plots, distributed throughout the study area. Twenty plant associations within nine sub-series are described (fig 1). They occured with highest frequency on the warm/dry environments of the inland Ranger Districts such as Orleans, Ukonom, and Happy Camp, and had their lowest frequency on the cool/moist, coastal environment of the Gasquet Ranger District, where, because of higher available moisture, conditions favor tanoak.

The verified distribution of each plant association are contained in Tables 1, 5 and 9. After initial use and testing of this classification, further locations will probably be identified and added to the tables. Currently the Ukonom Ranger District has the highest diversity of plant associations in the Douglas-fir series with 17. It is closely followed by the Orleans Ranger District with 16 plant associations, Gasquet and Happy Camp Ranger Districts with 12, and the Lower Trinity Ranger District with 11.

The PSME/COCOC and PSME-CACH2-LIDE2 plant associations appear to have the widest range, each occured on 6 Ranger Districts. They are followed by the PSME-LIDE2/WHMO, PSME-PIJE/FECA, PSME-ACMA/POMU1, PSME-QUCH2/LIDE2, PSME-QUKE, PSME-LIDE3/FECA, and PSME-QUCH2/ROCKPILE types, each occuring on 5 Ranger Districts. All other plant associations were identified on 4 or less Ranger Districts, with the smallest distribution being shared between the PSME-QUGA2/GRASS and PSME-ALOR/ACCI/MOSI types, which were found on the Mad River and Orleans Ranger Districts respectively. The limited range of the latter is probably a function of sampling rather than true rareity.

The Douglas-fir series occured primarily in the middle and upper 1/3 slope positions (fig 2), between 2000 and 4000 feet elevation (fig 3). The PSME-CACH2/RHMA-QUSA/XETE type was the highest plant association occuring at a mean elevation of 3696 feet, while the PSME-UMCA1/RHDI type was the lowest type, with a mean elevation of 1490 feet. The Douglas-fir series is replaced on lower elevation, wetter sites by the tanoak series and at upper elevation, cooler sites, by the white fir series (fig 4, Tables 2, 6 and 10).

Slopes ranged from level to steep and averaged (46%). The Douglas-fir-Canyon live oak sub-series had the steepest slopes averaging 60%, with the Douglas-fir-chinquapin sub-series and Douglas-fir-black oak sub-series occupying the moderate slopes averaging 42% and 44%, while the Douglas-fir-white oak sub-series and Douglas-fir-Jeffrey pine sub-series were found on gentle slopes averaging 34% and 36% respectively, and the Douglas-fir alder sub-series on

level slopes averaging 11%. The PSME-QUCH2/ROCKPILE type was the steepest plant association averaging 63%, while the PSME-ALOR/ACCI/MOSI type was the levelest, averaging 11% (Tables 2, 6 and 10).

Surface rock ranged from 0 to 90% and averaged 13%. The Douglas-fir-alder sub-series had the highest cover of surface rock averaging 70%. It was followed by the Douglas-fir-canyon live oak sub-series which averaged 25%. The lowest mean cover of surface rock and gravel occured in the Douglas-fir-Jeffrey pine and Douglas-fir-white oak sub-series, with averages of 2% (Tables 2,6 and 10).

The Douglas-fir series is found on all aspects (Tables 2, 6 and 10). In general, the Douglas-fir-canyon live oak sub-series was found on southwest facing aspects, while the Douglas-fir-chinquapin sub-series was found on northwest facing slopes. The Douglas-fir-high productivity sub-series was found on northwest facing aspects or on other aspects with topographic shading, while the Douglas-fir-low productivity sub-series occured on southwest aspects or exposed upper 1/3 slope positions.

**Soils**

Soils of the Douglas-fir series occured in the Inceptisol (71%), Alfisol (25%), and Entisol (3%) orders, and were classified in the Clallam, Hugo, Bentpeak, Kindig, Deadwood, Goldridge, Holland, Weitchpec, and Skalan soil families. In general, the Douglas-fir-low productivity sub-series was found on Weitchpec soils, while the Douglas-fir-high productivity sub-series was found on Holland, Hugo, and Clallam soils (Tables 2,6, and 10).

Soil temperature regimes were mesic (98%) and frigid (2%). The PSME-CACH2/RHMA-QUSA/XETE was the only plant association with a significant number of frigid plots. This is due to the high elevation position of this type. The soil moisture regime was considered xeric. However, this may change after soil survey correlation as some of these types may fall into the udic soil moisture regime.

Soil depths were primarily deep (55%) and moderately deep (33%), and occasionally lithic (12%) on selected plant associations. The Douglas-fir-high productivity sub-series had generally deep soils, while the Douglas-fir-low productivity sub-series had soil depths on the low end of moderately deep, the Douglas-fir-chinquapin sub-series were moderately deep. Soil textures were loamy skeletal (59%), fine loamy (37%) and clay loams (4%). A horizons were generally thick (7 in.), skeletal (36%), paticularly in the Douglas-fir-canyon live oak sub-series, of slightly acid pH (6.1), and of moderate water holding capacity (3.3 in.) (Tables 2, 6 and 10).

**Geology**
Parent rock was generally metamorphic and igneous intrusive, and occasionally sedimentary. Metamorphic rocks were represented by phyllite, schist, semischist, serpentine and greenstone, igneous intrusive rocks included granite, mafic, and ultramafic, while sedimentary rocks were generally sandstone (fig 5). The Douglas-fir-chinquapin sub-series and Douglas-fir-canyon live oak sub-series occured primarily on metamorphic rocks, while the Douglas-fir high and low productivity sub-series occured on both metamorphic and igneous intrusive rocks. The Douglas-fir-white oak sub-series occured exclusively on sedimentary parent material. Geomorphic processes such as mass movement were evident within the Douglas-fir series and appeared to be correlated with selected plant associations such as the PSME-QUCH2/ROCKPILE on head scarps and PSME-QUGA2/GRASS on hummocky terrain.

**Productivity**
Stands within the Douglas-fir series in northwest California are generally considered of moderate productivity when compared to those of Oregon and Washington. In the latter States site class tables developed by Mcardle (1949) are used, while in California, Dunning (base age 300 years, 1942) site class tables are used. These tables are quite different from one another, for instance a Dunning site class 1 is included in the Mcardle site class 3. It has a site index of 175, meaning that these sites are capable of growing a Douglas-fir tree of 175 feet in height in 300 years. The point of this discussion is to avoid misleading the reader when the frequency distribution of high site class Dunning stands is presented.

The majority of stands within the Douglas-fir series fall into Dunnings site class 1A-2 (base age 300 years) and have corresponding site indices of 200-150 (fig 6). Examples of high site class sub-series include the Douglas-fir-high productivity and Douglas-fir-chinquapin, the Douglas-fir-low productivity sub-series represents the low site classes 3 through 5.

Softwood volume and basal area are also generally moderate (figs 7, 8), while hardwood volumes are generally low, such as the PSME-PIJE/FECA, but can occasionally be high as in the PSME-QUCH2-ARME3/RHDI plant association (figs 9, 10, Tables 3,7, and 11).

Stand density index (SDI) is generally moderate, but varies from low to high depending on parent material, soil depth, and available moisture (fig 11, Tables 3, 7 and 11). The PSME-CACH2-LIDE2/BENE1 has the highest mean SDI of 514, it is found on cool/moist sites, with deep soils derived from metamorphic and igneous intrusive parent material. The PSME/QUVA-LIDEE had the lowest mean SDI of 266, it is found on hot dry sites, with shallow and moderately deep soils derived from serpentine parent material.

A timber management capability rating is assigned to each plant

association included in the Douglas-fir series (Table 13). They are rated as low, moderate, or high capability, depending on environment, management concerns, site capability to produce timber, and difficulty in regeneration. Examples of high capability ratings include the PSME/COCOC, PSME-ACMA/POMU1, and PSME-QUKE, while the PSME-CACH2/RHMA-BENE1 and PSME-QUCH2-LIDE2 are rated as moderate capability. Plant associations considered to have low capability for intensive timber management include PSME/QUVA, PSME-QUCH2/ROCKPILE, and PSME-LIDE3/FECA.

**Vegetation**

Douglas-fir is rated as intermediate in tolerance due to its capacity to regenerate under its own canopy in certain environments (Daniel, Helms and Baker, 1979). Here in this moderate set of environment conditions, Douglas-fir is the dominant conifer and successfully reproduces under its own canopy, hence it is considered the climax species. Although more shade tolerant species dominate above and below, these sites appear to be too dry for tanoak and too warm for white fir to dominate. Douglas-fir is found in varied environment conditions as a dominant or codominant species in most of the vegetation series of northwest California. These include the tanoak, white fir, Port-Orford cedar, and red fir series.

In the Douglas-fir series the conifer layer is low in species diversity. Douglas-fir is the dominant overstory conifer (46% cover) with sugar pine (10% cover) as an occasional codominant species (Tables 4, 8, and 12).

While the conifer layer may lack in diversity the hardwood layer is extremely variable. It changes in response to changing environment. On higher elevation, cooler sites, chinquapin dominates while on warm, dry, rocky sites, canyon live oak is dominant. The mesic, mid-elevation sites are dominated by black oak, while the moist lower 1/3 slopes near streams contain bigleaf maple. The Douglas-fir-high productivity and Douglas-fir-Jeffrey pine sub-series have the highest mean tree cover of 82%, while the Douglas-fir-low productivity and Douglas-fir-incense cedar sub-series have the lowest mean tree cover of 61%.

The shrub layer is generally moderate to low cover on most sub-series, but can occasionally be high, such as the Douglas-fir-low productivity sub-series (56%) and Douglas-fir-chinquapin sub-series (45%). Oregon-grape is the dominant shrub on mesic sites, poison oak dominates on warm sites, while hazelnut, Pacific rhododendron, salal, vine maple, and Sadler oak dominate on cool/moist sites, and huckleberry oak and dwarf tanbark dominate on sites with serpentine soils.

The forb layer is also diverse with prince's pine, western modesty, little princes pine, wintergreen, and starflower on mesic sites. Dry sites contain hawkweed, iris, and brakenfern, while wet sites

include swordfern, vanilla leaf, twinflower, and miners lettuce. Highest mean forb cover was found in the Douglas-fir-white oak and Douglas-fir-tanoak sub-series 24% and 23% respectively. Lowest mean forb cover was found in the Douglas-fir-canyon live oak, Douglas-fir-Jeffrey pine, and Douglas-fir-black oak sub-series with 6%, 5%, and 4% respectively.

The grass layer is generally sparse, but is occasionally a dominant feature in sub-series such as the Douglas-fir-incense cedar (55%), Douglas-fir-Jeffrey pine (45%), and Douglas-fir-white oak (16%). These sites are dominated by California fescue and western fescue.

**Fire History**

The primary stand replacing disturbance factor in the Douglas-fir series is wildfire, the exception to this is the Douglas-fir-alder sub-series where floods are the primary stand replacing event. The age distribution and mean age (243 years) of sampled stands (fig 12) indicates a moderate frequency of stand replacing wildfires and a squewed distribution leaning toward mature stands. Within the Douglas-fir series 11% of the stands sampled were less than 100 years old, while 28% were between 100 and 200 years, 29% were between 201 and 300 years old, 21% were between 301 and 400 years old, and 11% were greater than 401 years old. Both the tanoak and Port-Orford cedar series have significantly higher mean stand ages, and as demonstrated by their age distribution, lower fire frequencies. This is due to their lower 1/3 slope positions and higher available moisture. The white fir, red fir, and Jeffrey pine series have significantly lower mean stand ages and age distributions due to their upslope topographic positions and propensity for lightning caused wildfires.

The Douglas-fir-low productivity, Douglas-fir-chinquapin, and Douglas-fir-tanoak sub-series had the highest mean stand ages of 278, 258, and 257 years. The lowest mean stand age was found in the Douglas-fir-white oak sub-series, 147 years. Here frequent stand replacing wildfires limit stand development to the early portion of the mature seral stage.

**Plant Associations**

The relative environments of the different plant associations in the Douglas-fir series are displayed in figure 13. The PSME-UMCA1/RHDI type is the lowest in elevation. It is found on relatively mesic sites. The PSME-ALOR/ACCI/MOSI type is the wettest association, it occurs on cool, middle elevation, lower 1/3 slopes, adjacent to streams. The PSME/QUVA-LIDEE type is the highest elevation, hot/dry type occuring in upper 1/3 slope positions, while the PSME-CACH2/RHMA-QUSA/XETE is the highest elevation cool/moist type (Tables 2, 6, and 10). Full descriptions of each plant association including distribution, environment, productivity, soils, species composition, and management are included in Tables 1 through 60 in section V.

# DOUGLAS-FIR SERIES PLANT ASSOCIATION KEY

| | | Page |
|---|---|---|
| 1a. Alder cover high usually > 50% | 2 | |
| **Douglas-fir-Alder Sub-series** | | |
| 2a. Vine maple and candyflower present | PSME-ALOR/ACCI/MOSI | V-39 |
| 2b. Vine maple or candyflower absent | 3 | |
| 1b. Alder absent or not as above | 3 | |
| **Douglas-fir-Jeffrey Pine Sub-series** | | |
| 3a. Jeffrey pine ≥ 10% cover and California fescue ≥ 5% cover | PSME-PIJE/FECA | V-6 |
| 3b. Jeffrey pine or California fescue absent or not as above | 4 | |
| **Douglas-fir-Incense Cedar Sub-series** | | |
| 4a. Incense cedar ≥ 10% cover and California fescue ≥ 2% cover | PSME-LIDE3/FECA | V-51 |
| 4b. Incense cedar or California fescue absent or not as above | 5 | |
| **Douglas-fir-White Oak Sub-series** | | |
| 5a. White oak ≥ 5% cover and total grass cover ≥ 5% | PSME-QUGA2/GRASS | V-43 |
| 5b. White oak absent or not as above | 6 | |
| 6a. Canyon live oak present and ≥ 10% cover | 7 | |
| **Douglas-fir-Canyon Live Oak Sub-series** | | |
| 7a. Pacific madrone and poison oak present, tanoak < 2% cover | PSME-QUCH2-ARME3/RHDI | V-59 |
| 7b. Not as above | 8 | |
| 8a. Surface rock ≥ 25% cover | PSME-QUCH2/ROCKPILE | V-55 |
| 8b. Not as above | 9 | |
| 9a. Tanoak cover ≥ 5% | PSME-QUCH2-LIDE2 | V-63 |
| 9b. Not as above | 10 | |
| 6b. Canyon live oak absent or not as above | 10 | |

10a. Chinquapin present and ≥ 5% cover___ 11

**Douglas-fir-Chinquapin Sub-series**

11a. Pacific rhododendron ≥ 5% cover____ 12

12a. Sadler oak present and ≥ 5% cover_____ PSME-CACH2/RHMA-QUSA/XETE V-81

12b. Sadler oak absent or not as above_ 13

13a. Dwarf Oregon grape present and ≥ 2% cover_____ PSME-CACH2/RHMA-BENE1 V-76

13b. Dwarf Oregon grape absent or not as above_____ 14

11b. Pacific rhododendron absent or not as above_____ 14

14a. Beargrass present and ≥ 10% cover_ PSME-CACH2/XETE V-72

14b. Beargrass absent or not as above__ 15

15a. Tanoak present and ≥ 5% cover____ 16

16a. White fir present and ≥ 5% cover_____ PSME-CACH2-LIDE2/BENE1 V-85

16b. White fir absent or not as above_____ PSME-CACH2-LIDE2 V-67

15b. Tanoak absent or not as above____ 17

10b. Chinquapin absent or not as above___ 17

**Douglas-fir-Low Productivity Sub-series**

17a. California bay present and ≥ 10% cover_____ PSME-UMCA1/RHDI V-15

17b. California bay absent or not as above_____ 18

18a. Huckleberry oak present and ≥ 5% cover_____ 19

19a. Dwarf tanbark present_____ PSME/QUVA-LIDEE V-34

19b. Dwarf tanbark absent_____ PSME/QUVA V-10

18b. Huckleberry oak absent or not as above_____ 20

**Douglas-fir-High Productivity Sub-series**

| | | |
|---|---|---|
| 20a. Vine maple present and ≥ 10% cover | PSME/ACCI-BENE1 | V-29 |
| 20a. Vine maple absent or not as above | 21 | |
| 21a. Bigleaf maple present and ≥ 10% cover | PSME-ACMA/POMU1 | V-24 |
| 21b. Bigleaf maple absent or not as above | 22 | |
| 22a. Tanoak present and ≥ 5% cover | 23 | |

**Douglas-fir-Tanoak Sub-series**

| | | |
|---|---|---|
| 23a. Western modesty present and ≥ 2% cover | PSME-LIDE2/WHMO | V-1 |
| 23b. Western modesty absent or not as above | 24 | |
| 22b. Tanoak absent or not as above | 2 | |

**Douglas-fir-Black Oak Sub-series**

| | | |
|---|---|---|
| 24a. Black oak present and ≥ 5% cover | PSME-QUKE | V-47 |
| 24b. Black oak absent or not as above | 25 | |

**Douglas-fir-Ponderosa Pine Sub-series**

| | | |
|---|---|---|
| 25a. Ponderosa pine present and ≥ 5% cover | PSME-PIPO | |
| 25b. Ponderosa pine absent or not as above | 26 | |

**Douglas-fir-High Productivity Sub-series**

| | | |
|---|---|---|
| 26a. Hazelnut present | PSME/COCOC | V-19 |
| 26b. Hazelnut absent | Go back and try again | |

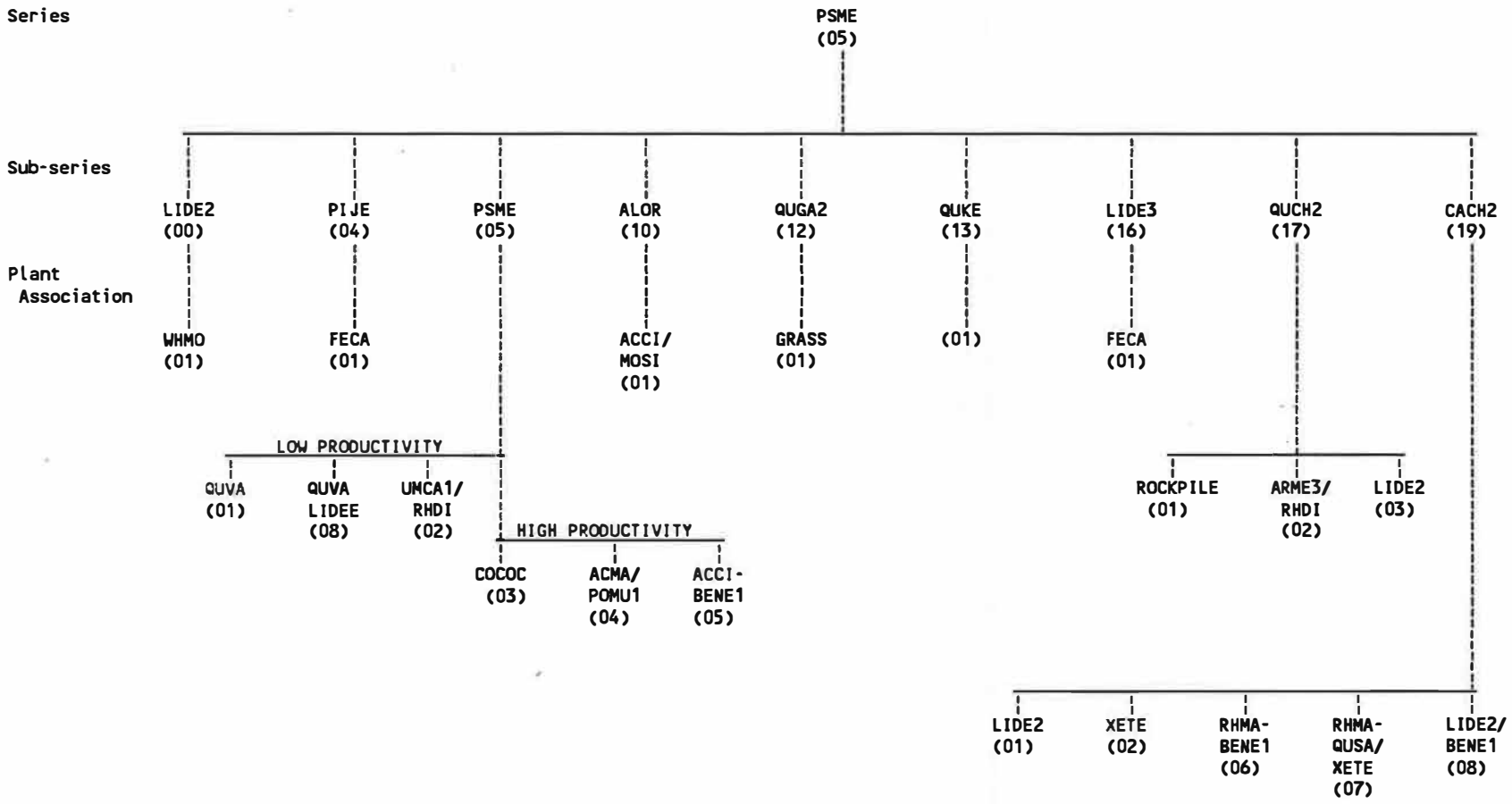



Figure 1. Dendrogram of plant associations within the Douglas-fir series.

Table 1. Confirmed locations of plant associations in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| LOCATION | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/ QUVA | PSME-UMCA1/ RHDI | PSME/ COCOC | PSME-ACMA/ POMU1 | PSME/ ACCI-BENE1 |
| **SIX RIVERS NF** | | | | | | | |
| GASQUET RD | X | X | X | X | | X | |
| ORLEANS RD | X | X | X | X | X | X | X |
| LOWER TRINITY RD | X | X | | X | X | X | |
| MAD RIVER RD | | | | | X | | |
| **KLAMATH NF** | | | | | | | |
| UKONOM RD | X | X | X | X | X | X | X |
| HAPPY CAMP RD | X | X | X | | X | X | |
| OAK KNOLL RD | | | | | | | |
| SALMON RIVER RD | | | | | X | | |
| SCOTT RIVER RD | | | | | | | |

Table 2. Comparison of environment and soil variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| NUMBER OF PLOTS | 13 | 11 | 26 | 7 | 29 | 13 | 4 |
| **ENVIRONMENT:** ELEVATION (ft) | 2943 | 2818 | 3426 | 1490 | 2951 | 2946 | 2882 |
| ASPECT | N. EAST, WEST | S. EAST, WEST | N. EAST, S. WEST | S. WEST | N. WEST, N. EAST | EAST, S. WEST | EAST |
| SLOPE (%) | 52 | 36 | 50 | 41 | 53 | 42 | 29 |
| RADIATION INDEX | .423 | .454 | .350 | .493 | .440 | .498 | .469 |
| SURFACE ROCK(%) | 5 | 2 | 10 | 7 | 12 | 18 | 3 |
| **SOILS:** SOIL DEPTH (in) | 35 | 27 | 28 | 37 | 38 | 36 | 40+ |
| AWC (in) | 2.7 | 3.4 | 2.3 | 3.2 | 3.8 | 3.4 | 4.4 |
| A HORIZON | | | | | | | |
| THICKNESS (in) | 5 | 6 | 5 | 4 | 8 | 8 | 6 |
| CO. FRAG. (%) | 39 | 22 | 36 | 33 | 41 | 35 | 41 |
| COLOR | very dark brown, dark reddish brown, very dark grayish brown | dark brown | dark yellowish brown, dark brown, dark reddish brown | black, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown | dark yellowish brown, dark brown, very dark grayish brown | dark brown, dark grayish brown |
| TEXTURE | gl, vgl, xgsl | gl, gsil | gl, vgl, gcl, gsil | gl, vgl | l, gl, sl, gcl, gsl, xgl, gscl | gl, vgl, l | gl, xgl |
| PARENT MATERIAL | schist,phyllite greenstone,mafic | serpentine greenstone | serpentine mafic | serpentine | mafic, semischist granite, phyllite schist | phyllite, schist sandstone,mafic | variable |
| SOIL FAMILY | Clallam, Hugo | Weitchpec, Coyata | Weitchpec, Clallam, Skalan | Fiddletoe, Weitchpec | Clallam, Holland, Hugo | Clallam, Yorkville | Bentpeak, Hugo, Holland |

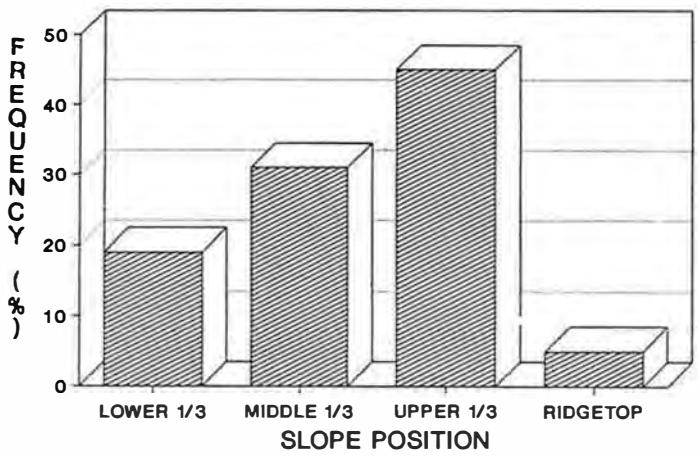



Figure 2. Slope position distribution of stands in the Douglas-fir series.

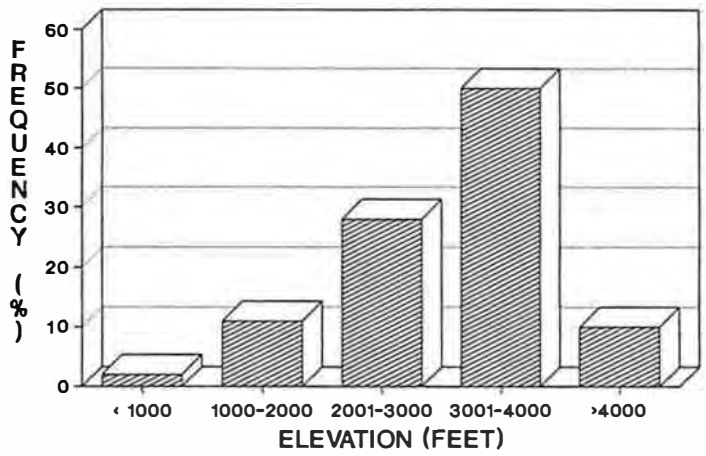



Figure 3. Elevation distribution of stands in the Douglas-fir series.

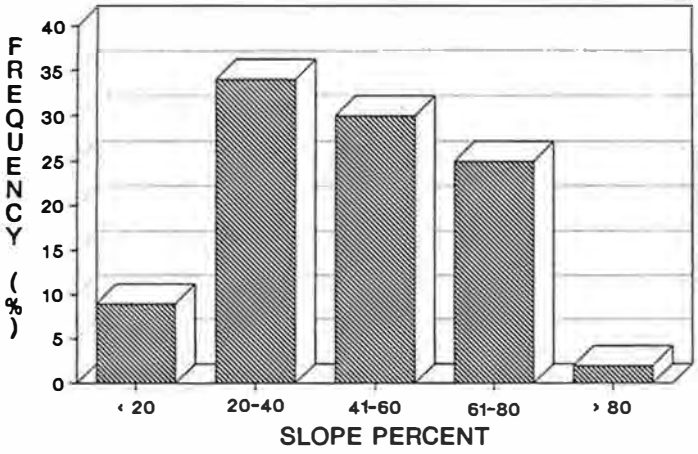



Figure 4. Frequency of slopes in the Douglas-fir series.

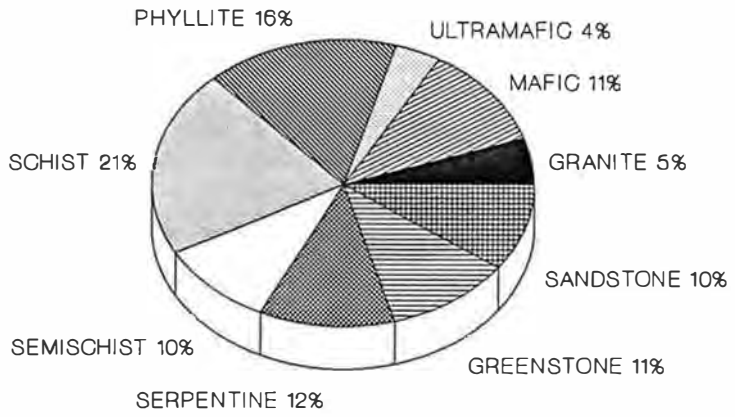



Figure 5. Distribution of parent rock in the Douglas-fir series.

Table 3. Comparison of stand structure variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series for stands ≥ 180 years.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| NUMBER OF PLOTS | 12 | 6 | 24 | 3 | 21 | 6 | 3 |
| STAND AGE | 291 | 241 | 332 | 263 | 333 | 373 | 388 |
| SOFTWOOD | | | | | | | |
| VOLUME ($ft^3$) | 8825 | 4259 | 6863 | 5952 | 10240 | 10987 | 11,034 |
| BASAL AREA ($ft^2$) | 239 | 139 | 225 | 182 | 261 | 295 | 324 |
| HARDWOOD | | | | | | | |
| VOLUME ($ft^3$) | 898 | 331 | 202 | 1042 | 304 | 883 | 0 |
| BASAL AREA ($ft^2$) | 45 | 13 | 10 | 53 | 15 | 49 | 0 |
| SITE CLASS | 1A-2 | 2, 3 | 3-5 | 2-3 | 1A, 1 | 1A, 1 | 1A-2 |
| SITE INDEX | 150-200 | 125-150 | 75-125 | 125-150 | 175-200 | 175-200 | 150-200 |
| STAND DENSITY INDEX | 411 | 305 | 328 | 381 | 397 | 496 | 484 |

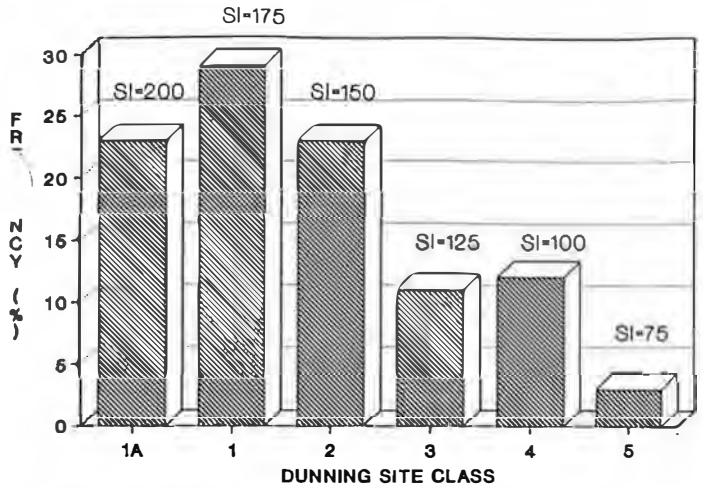



Figure 6. Dunning site class distribution in the Douglas-fir series, with site index.

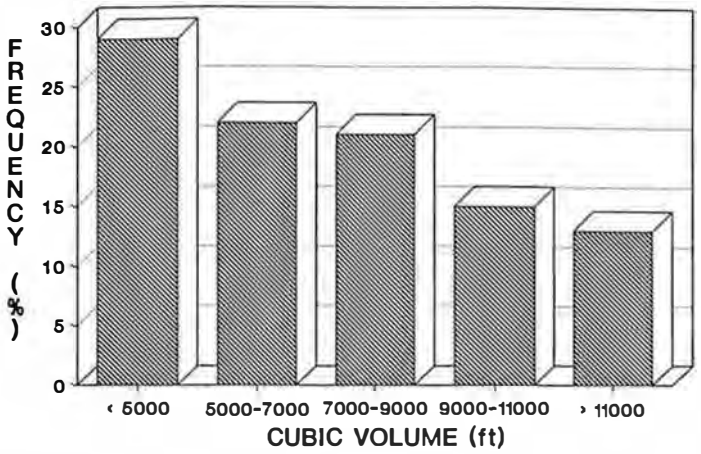



Figure 7. Softwood volume distribution in the Douglas-fir series.

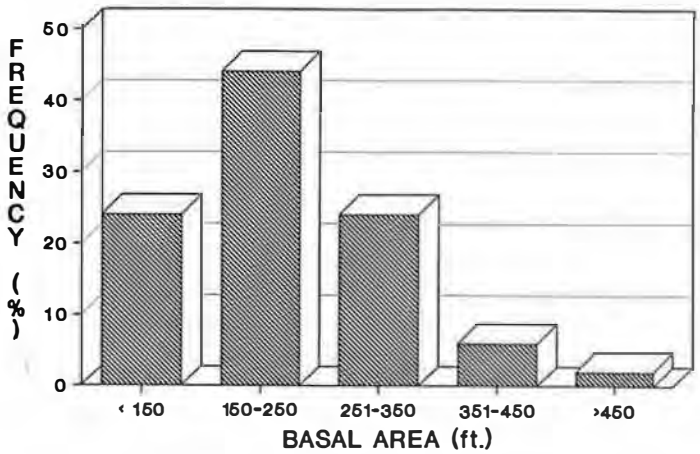



Figure 8. Softwood basal area distribution in the Douglas-fir series.

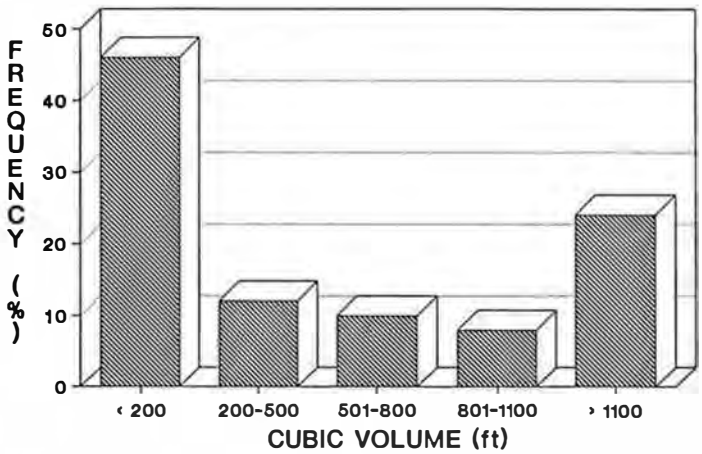



Figure 9. Hardwood volume distribution in the Douglas-fir series.

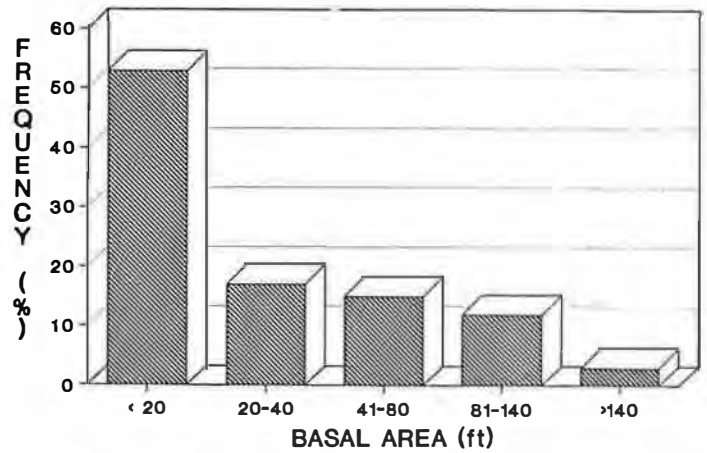



Figure 10. Hardwood basal area distribution in the Douglas-fir series.

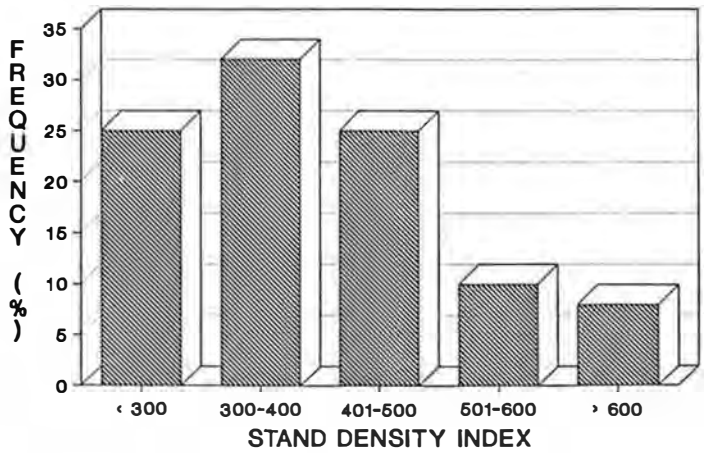



Figure 11. Stand density index distribution in the Douglas-fir series.

Table 4. Comparison of vegetation variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| **VEGETATION LAYER (% COVER)** | | | | | | | |
| TOTAL COVER | 90 | 91 | 92 | 90 | 88 | 97 | 98 |
| GRASS COVER | 2 | 45 | 1 | 3 | 2 | 1 | 1 |
| FORB COVER | 23 | 5 | 14 | 5 | 16 | 28 | 7 |
| SHRUB COVER | 18 | 7 | 55 | 15 | 7 | 21 | 86 |
| TREE COVER | 72 | 82 | 61 | 78 | 78 | 92 | 75 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | | |
| DOUGLAS-FIR | 46 (100) | 41 (100) | 36 (100) | 58 (100) | 55 (100) | 65 (100) | 40 (100) |
| PACIFIC MADRONE | 7 (91) | 11 (63) | 5 (46) | 13 (57) | 4 (6) | 8 (53) | |
| SUGAR PINE | 4 (66) | | 12 (88) | 5 (14) | 12 (13) | 8 (7) | |
| CANYON LIVE OAK | 10 (41) | | 4 (11) | 4 (28) | 6 (37) | 8 (38) | |
| CHINQUAPIN | 2 (16) | | 4 (19) | | 9 (17) | 3 (15) | 3 (75) |
| TANOAK | 3 (58) | 13 (27) | 6 (35) | 8 (14) | 5 (31) | 5 (30) | 5 (25) |
| BLACK OAK | 11 (16) | 2 (9) | 3 (7) | 5 (28) | 4 (17) | 3 (23) | |
| BIGLEAF MAPLE | 2 (8) | | 2 (3) | 6 (28) | 7 (41) | 18 (100) | 4 (50) |
| INCENSE CEDAR | 12 (33) | 17 (72) | 6 (65) | 6 (28) | 5 (3) | 10 (15) | |
| JEFFREY PINE | 3 (8) | 14 (100) | 4 (19) | 20 (12) | | | |
| PACIFIC DOGWOOD | 3 (7) | | 4 (15) | | 4 (37) | 9 (30) | 8 (75) |
| WHITE FIR | 2 (30) | | 2 (19) | | 2 (3) | 18 (15) | |
| OREGON WHITE OAK | | 3 (36) | | 5 (12) | | | |
| PORT-ORFORD CEDAR | 3 (8) | 1 (9) | 2 (3) | | | | |
| CALIFORNIA BAY | 16 (16) | 27 (27) | | 41 (100) | 5 (3) | 35 (15) | |
| PACIFIC YEW | | | 2 (11) | 3 (14) | 2 (3) | 9 (30) | 12 (75) |
| ALDER | | | | | | 8 (15) | |

Table 4. Comparison of vegetation variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | | |
| DOUGLAS-FIR | 2 (92) | 2 (100) | 2 (80) | 2 (57) | 5 (82) | 5 (76) | 2 (50) |
| TANOAK | 5 (92) | 4 (72) | 10 (57) | 3 (42) | 3 (41) | 5 (61) | 2 (75) |
| CANYON LIVE OAK | 6 (69) | 1 (27) | 10 (11) | 1 (57) | 4 (65) | 6 (61) | 1 (25) |
| SUGAR PINE | 1 (61) | 1 (18) | 1 (50) | 1 (14) | 1 (27) | | |
| CHINQUAPIN | 3 (15) | | 5 (30) | | 3 (20) | | 7 (25) |
| PACIFIC MADRONE | 2 (46) | 9 (45) | 1 (26) | 1 (28) | 1 (10) | 1 (7) | |
| INCENSE CEDAR | 2 (38) | 2 (100) | 1 (73) | 1 (14) | 1 (3) | 2 (15) | |
| WHITE FIR | 8 (7) | 1 (27) | 2 (38) | | 1 (24) | 4 (23) | |
| PACIFIC DOGWOOD | 1 (38) | | 1 (3) | | 2 (48) | 1 (15) | 5 (25) |
| CALIFORNIA BAY | 2 (23) | 6 (63) | 1 (7) | 16 (100) | 2 (3) | 1 (23) | |
| BLACK OAK | 1 (38) | | 1 (7) | | 1 (17) | 1 (25) | |
| PACIFIC YEW | | 1 (19 | 8 (19) | 1 (14) | 1 (3) | 1 (23) | 2 (75) |
| BIGLEAF MAPLE | 1 (7) | | 1 (3) | | 1 (17) | 3 (61) | |
| SUGAR PINE | | | | | | | |
| PORT-ORFORD CEDAR | 1 (7) | 1 (9) | 1 (3) | | | | |
| OREGON WHITE OAK | | 1 (18) | | 1 (12) | | | |
| JEFFREY PINE | | 1 (45) | 1 (19) | | | | |

Table 4. Comparison of vegetation variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | | |
| POISON OAK | 7 (61) | 4 (45) | 9 (11) | 3 (71) | 3 (51) | 2 (38) | |
| DWARF OREGON-GRAPE | 3 (53) | 1 (9) | 2 (61) | 1 (14) | 3 (44) | 8 (61) | 34 (100) |
| HAZELNUT | 3 (61) | 1 (27) | 3 (15) | 2 (28) | 3 (100) | 4 (76) | |
| RED HUCKLEBERRY | 1 (7) | | 10 (65) | | | 1 (7) | 4 (100) |
| WILD ROSE | 2 (76) | 1 (25) | 1 (76) | 1 (12) | 1 (66) | 2 (50) | 1 (50) |
| TRAILING BLACKBERRY | 1 (46) | 1 (9) | 1 (26) | | 1 (13) | 1 (53) | 1 (50) |
| SNOWBERRY | 1 (84) | 1 (18) | 1 (19) | | 1 (44) | 2 (23) | 1 (25) |
| HUCKLEBERRY OAK | 11 (23) | 5 (27) | 39 (100) | | 6 (6) | | |
| PACIFIC RHODODENDRON | | 5 (9) | | | | | 22 (100) |
| SADLER OAK | | | 3 (3) | | | | |
| SALAL | 6 (15) | | | | | | 43 (75) |
| OCEANSPRAY | 3 (76) | 10 (9) | 2 (15) | | 4 (13) | | |
| ORANGE HONEYSUCKLE | 2 (15) | 1 (18) | | 35 (14) | 1 (27) | 2 (7) | |
| HAIRY HONEYSUCKLE | 1 (23) | 2 (27) | 1 (3) | 2 (57) | 1 (6) | 2 (15) | |
| PYGMY HOLLYGRAPE | 1 (15) | 1 (27) | 2 (15) | 1 (14) | | | |
| PINEMAT MANZANITA | | | 12 (15) | | | | |
| DEERBRUSH | 4 (38) | 3 (18) | 2 (11) | | 2 (6) | 2 (7) | |
| WESTERN SERVICEBERRY | | 1 (25) | 2 (60) | | 1 (8) | | |
| GREENLEAF MANZANITA | | | 2 (19) | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| VINE MAPLE | | | 1 (3) | | 3 (3) | 7 (15) | 31 (100) |
| SLENDER SALAL | | | | | | | |
| OREGON BOXWOOD | 1 (7) | | 1 (7) | | | 1 (7) | |
| BOXLEAF SILKTASSEL | 1 (7) | | 4 (23) | | | | |
| COFFEEBERRY | | 1 (18) | 3 (15) | | | | |
| BLACKCAP | 2 (15) | 2 (9) | 1 (3) | 1 (14) | 1 (13) | 1 (7) | 1 (25) |
| GOOSEBERRY | 1 (7) | | | 1 (14) | | 1 (7) | |
| DWARF TANBARK | | | 10 (3) | | | | |
| THIMBLEBERRY | | 1 (9) | 1 (3) | | 1 (10) | | |
| CREEPING OREGON-GRAPE | 1 (25) | 1 (9) | 2 (15) | | | | |

Table 4. Comparison of vegetation variables by plant association in the Douglas-fir-tanoak, Douglas-fir-Jeffrey pine, Douglas-fir-low productivity, and Douglas-fir-high productivity sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME-LIDE2/ WHMO | PSME-PIJE/ FECA | PSME/QUVA | PSME-UMCA1/ RHDI | PSME/COCOC | PSME-ACMA/ POMU1 | PSME/ACCI-BENE1 |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | | |
| WESTERN MODESTY | 11 (92) | 6 (18) | 6 (73) | 8 (28) | 11 (48) | 16 (61) | 3 (100) |
| PRINCE'S PINE | 6 (61) | 2 (36) | 2 (84) | | 3 (20) | 1 (7) | 1 (100) |
| SWORDFERN | 1 (23) | 2 (45) | 2 (11) | 1 (71) | 1 (62) | 7 (89) | 3 (50) |
| BRACKENFERN | 1 (38) | 1 (27) | 1 (11) | 1 (14) | 1 (55) | 3 (30) | 1 (25) |
| HAWKWEED | 1 (53) | 1 (54) | 2 (23) | 1 (14) | 1 (68) | 2 (30) | |
| LITTLE PRINCE'S PINE | 1 (69) | 1 (36) | 1 (34) | 1 (14) | 1 (55) | 1 (7) | 1 (25) |
| IRIS | 2 (46) | 1 (63) | 1 (53) | 1 (14) | 1 (44) | 1 (7) | |
| BEARGRASS | 3 (23) | 2 (9) | 6 (57) | | | | |
| RATTLESNAKE PLANTAIN | 1 (38) | 1 (9) | 1 (38) | 1 (14) | 1 (58) | 1 (30) | 1 (75) |
| WINTERGREEN | 1 (23) | 1 (9) | 1 (34) | | 1 (37) | 1 (38) | 1 (25) |
| STARFLOWER | 1 (53) | 1 (45) | 2 (53) | 1 (42) | 1 (51) | 1 (53) | 1 (50) |
| VANILLA LEAF | 3 (76) | 1 (9) | 2 (26) | | 5 (62) | 1 (15) | 2 (75) |
| HOOKER'S FAIRYBELL | 1 (61) | 1 (27) | 1 (26) | | 1 (72) | 2 (46) | |
| TWINFLOWER | 2 (23) | | 6 (34) | | 12 (10) | 2 (23) | 2 (50) |
| RAYLESS ARNICA | 1 (23) | 1 (18) | 2 (19) | | 1 (24) | | |
| WHITE INSIDE-OUT FLOWER | 3 (15) | 1 (9) | 1 (11) | 1 (14) | 1 (34) | 3 (7) | 2 (50) |
| SMALL BEDSTRAW | 1 (15) | | | | 1 (44) | | 1 (25) |
| TRAILPLANT | 3 (30) | 1 (18) | | | 2 (41) | 1 (30) | 1 (25) |
| REDWOOD VIOLET | 3 (7) | 1 (27) | | | 1 (6) | 3 (38) | 1 (25) |
| FALSE SOLOMON'S SEAL | 1 (15) | 1 (9) | 1 (30) | 1 (14) | 1 (6) | | 1 (25) |
| BEDSTRAW | 1 (7) | | 1 (19) | 1 (14) | 1 (6) | 1 (12) | 1 (25) |
| TOOTHED PYROLA | | | 1 (19) | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CALIFORNIA HAREBELL | 1 (23) | 1 (38) | 1 (7) | 2 (14) | 2 (27) | 1 (23) | |
| SLENDER-TUBED IRIS | 1 (7) | | 2 (7) | | 1 (10) | | |
| MOUNTAIN HEMP | | | | | | | |
| DOGBANE | 1 (30) | | 1 (23) | | 1 (13) | | |
| SWEET CICELY | 2 (15) | 1 (9) | | | 5 (3) | 1 (23) | |
| LEAFLESS PYROLA | | 1 (18) | 1 (3) | | 1 (3) | 1 (15) | |
| AMERICAN VETCH | 2 (15) | | | | 3 (20) | | |
| PACIFIC HOUND'S-TONGUE | 1 (7) | | | 1 (14) | 1 (3) | 1 (15) | |
| WHITE TRILLIUM | | 1 (9) | 1 (7) | | 1 (6) | 1 (7) | 1 (50) |
| STREAM VIOLET | 1 (7) | | | | 1 (17) | 1 (15) | 2 (25) |
| WILD STRAWBERRY | 1 (15) | | | | 1 (3) | 1 (15) | |
| WOODLAND TARWEED | 1 (7) | | | | 1 (3) | 1 (7) | |
| WESTERN VIOLET | | | | | | | |
| WINECUP LILY | | | 1 (23) | | | | |
| MILKWORT | | 1 (36) | | 1 (42) | | | |
| SPREADING DOGBANE | | | | | 1 (6) | | |
| GAMBLEWEED | | | | | | | |
| JAPANESE HEDGE PARSLEY | | | | | | | |
| INSIDE-OUT FLOWER | | | | | | 1 (23) | |
| IMBRICATE SWORDFERN | 1 (7) | 1 (9) | 1 (19) | | 3 (3) | | |
| WESTERN FESCUE | 1 (23) | 3 (36) | 1 (19) | 3 (14) | 3 (41) | | |
| CALIFORNIA FESCUE | 18 (15) | 47 (100) | | 1 (42) | 3 (6) | 1 (7) | |
| BEARDED FESCUE | 1 (8) | | | 5 (14) | 10 (3) | 3 (7) | 1 (25) |
| SEDGE | 1 (7) | | 1 (7) | | 1 (3) | 1 (7) | 1 (25) |
| BROME | 2 (8) | 2 (18) | 8 (11) | 1 (28) | 1 (3) | 1 (7) | |

Table 5. Confirmed locations of plant associations in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series by National Forest and Ranger District.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| LOCATION | PSME/ QUVA- LIDEE | PSME-ALOR/ ACCI/ MOSI | PSME-QUGA2/ GRASS | PSME-QUKE | PSME-LIDE3/ FECA | PSME- QUCH2/ ROCKPILE | PSME- QUCH2- ARME3/ RHDI |
| **SIX RIVERS NF** | | | | | | | |
| GASQUET RD | X | | | | X | X | |
| ORLEANS RD | X | X | | | X | X | |
| LOWER TRINITY RD | | | X | X | X | X | X |
| MAD RIVER RD | | | | X | | | |
| **KLAMATH NF** | | | | | | | |
| UKONOM RD | | | | X | X | X | X |
| HAPPY CAMP RD | | | | X | X | X | X |
| OAK KNOLL RD | | | | | | | |
| SALMON RIVER RD | | | | X | | | |
| SCOTT RIVER RD | | | | | | | |

Table 6. Comparison of environment and soil variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/QUVA-LIDEE | PSME-ALOR/ACCI/MOSI | PSME-QUGA2/GRASS | PSME-QUKE | PSME-LIDE3/FECA | PSME-QUCH2-LIDE2/ROCKPILE | PSME-QUCH2-ARME3/RHDI |
| NUMBER OF PLOTS | 12 | 5 | 10 | 26 | 14 | 18 | 26 |
| ENVIRONMENT: ELEVATION (ft) | 3488 | 2466 | 2810 | 2383 | 2646 | 3261 | 2722 |
| ASPECT | S. WEST, N. WEST | N. WEST, S. EAST | S. WEST | S. WEST, S. EAST | SOUTH, N. WEST | S. WEST | WEST, S. WEST |
| SLOPE (%) | 46 | 11 | 34 | 44 | 42 | 63 | 59 |
| RADIATION INDEX | .423 | .456 | .497 | | .429 | .437 | .502 |
| SURFACE ROCK(%) | 17 | 70 | 2 | 7 | 8 | 40 | 21 |
| SOILS: SOIL DEPTH (in) | 23 | 40 | 39 | 33 | 30 | 31 | 33 |
| AWC (in) | 1.9 | 1.9 | 4.0 | 3.7 | 3.1 | 2.6 | 1.8 |
| A HORIZON | | | | | | | |
| THICKNESS (in) | 5 | 3 | 9 | 6 | 6 | 8 | 10 |
| CO. FRAG. (%) | 43 | 49 | 28 | 33 | 31 | 50 | 56 |
| COLOR | dark yellowish brown, dark brown | dark grayish brown, very dark gray | very dark gray, black | dark brown, dark yellowish brown, dark reddish brown | dark brown, dark reddish brown, very dark grayish brown | dark brown, very dark grayish brown | yellowish brown, dark brown, brown |
| TEXTURE | vgl, xgl, gl | gsl, xgsl | gl, l | l, gl, vgl, xgl | gl, gsil, vgl | gl, sl, xgl, vgl | gl, xgl, vgl |
| PARENT MATERIAL | serpentine | mixed | sandstone | greenstone granite schist mafic | serpentine | semischist phyllite greenstone schist | sandstone schist phyllite greenstone |
| SOIL FAMILY | Olete, Orleans, Weitchpec | Entesols | Bentpeak, Doty | Hugo, Clallam, Goldridge | Skalan, Weitchpec | Clallam, Deadwood, Bentpeak | Deadwood, Kistirn, Kindig, Clallam, Abegg, Marpa |

Table 7. Comparison of stand structure variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series for stands ≥ 180 years.
* No stands ≥ 180 years were found in these types.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/QUVA-LIDEE | PSME-ALOR/ACCI/MOSI | PSME-QUGA2/GRASS | PSME-QUKE | PSME-LIDE3/FECA | PSME-QUCH2-LIDE2/ROCKPILE | PSME-QUCH2-ARME3/RHDI |
| NUMBER OF PLOTS | 12 | 5 | 7 | 20 | 8 | 11 | 8 |
| STAND AGE | 332 | 102* | 147* | 334 | 292 | 353 | 289 |
| SOFTWOOD | | | | | | | |
| VOLUME ($ft^3$) | 4794 | | 3737 | 7486 | 6082 | 5995 | 5936 |
| BASAL AREA ($ft^2$) | 184 | 17 | 142 | 193 | 208 | 180 | 167 |
| HARDWOOD | | | | | | | |
| VOLUME ($ft^3$) | 77 | | 1299 | 1304 | 775 | 1114 | 1836 |
| BASAL AREA ($ft^2$) | 3 | 46 | 64 | 64 | 35 | 55 | 88 |
| SITE CLASS | 3-4 | 1 | 1-2 | 1A-1 | 2-3 | 3-4 | 1-2 |
| SITE INDEX | 100-125 | 175 | 150-175 | 175-200 | 125-150 | 100-125 | 150-175 |
| STAND DENSITY INDEX | 266 | | 344 | 418 | 348 | 378 | 401 |

Table 8. Comparison of vegetation variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/QUVA-LIDEE | PSME-ALOR/ACCI/MOSI | PSME-QUGA2/GRASS | PSME-QUKE | PSME-LIDE3/FECA | PSME-QUCH2-LIDE2/ROCKPILE | PSME-QUCH2-ARME3/RHDI |
| **VEGETATION LAYER (% COVER)** | | | | | | | |
| TOTAL COVER | 98 | 98 | 95 | 87 | 94 | 87 | 86 |
| GRASS COVER | 2 | 5 | 16 | 3 | 55 | 1 | 1 |
| FORB COVER | 13 | 65 | 24 | 4 | 13 | 6 | 4 |
| SHRUB COVER | 84 | 16 | 2 | 7 | 8 | 8 | 9 |
| TREE COVER | 59 | 93 | 75 | 82 | 61 | 77 | 84 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | | |
| DOUGLAS-FIR | 31 (100) | 6 (100) | 63 (100) | 49 (100) | 45 (100) | 32 (100) | 33 (100) |
| PACIFIC MADRONE | 4 (25) | | 6 (30) | 9 (69) | 10 (64) | 8 (61) | 8 (88) |
| SUGAR PINE | 17 (75) | | | 10 (46) | 5 (28) | 4 (61) | 7 (23) |
| CANYON LIVE OAK | 8 (8) | | 5 (10) | 8 (69) | 8 (42) | 28 (94) | 43 (100) |
| CHINQUAPIN | 5 (8) | | | 5 (7) | | 8 (33) | 8 (7) |
| TANOAK | | | 3 (10) | 4 (30) | 2 (35) | 4 (55) | 3 (23) |
| BLACK OAK | | | 15 (40) | 9 (100) | 8 (7) | 8 (16) | 10 (23) |
| BIGLEAF MAPLE | | 8 (40) | 11 (30) | 8 (7) | | 10 (16) | 8 (30) |
| INCENSE CEDAR | 3 (41) | | 2 (10) | 3 (3) | 11 (89) | | |
| JEFFREY PINE | 6 (15) | | 2 (10) | 6 (7) | 14 (35) | | 10 (26) |
| PACIFIC DOGWOOD | | | | 10 (3) | | 2 (5) | |
| WHITE FIR | 1 (8) | | | 3 (7) | 1 (7) | 3 (11) | |
| OREGON WHITE OAK | | | 11 (100) | 3 (3) | 10 (28) | | 6 (11) |
| PORT-ORFORD CEDAR | 1 (8) | 5 (20) | | | | | |
| CALIFORNIA BAY | | | 51 (10) | 5 (3) | 2 (14) | | |
| PACIFIC YEW | | | | | | | |
| ALDER | | 86 (100) | | | | | |

Table 8. Comparison of vegetation variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/ QUVA-LIDEE | PSME-ALOR/ ACCI/MOSI | PSME-QUGA2/ GRASS | PSME-QUKE | PSME-LIDE3/ FECA | PSME-QUCH2- LIDE2/ROCKPILE | PSME-QUCH2- ARME3/RHDI |
| TREE UNDERSTORY (% COVER) (CONSTANCY) | | | | | | | |
| DOUGLAS-FIR | 2 (83) | 5 (100) | 1 (70) | 6 (92) | 4 (100) | 3 (77) | 4 (88) |
| TANOAK | 3 (8) | | 1 (10) | 5 (53) | 2 (71) | 6 (66) | 2 (23) |
| CANYON LIVE OAK | | | 2 (40) | 4 (73) | 2 (64) | 13 (100) | 8 (100) |
| SUGAR PINE | 1 (75) | | | 2 (69) | 2 (21) | 1 (33) | 1 (19) |
| CHINQUAPIN | | | 2 (40) | 1 (3) | | 4 (33) | 4 (7) |
| PACIFIC MADRONE | 1 (8) | | 1 (10) | 1 (26) | 1 (42) | 1 (22) | 1 (65) |
| INCENSE CEDAR | 1 (25) | | 1 (10) | 1 (3) | 2 (45) | | 1 (3) |
| WHITE FIR | 1 (16) | | 1 (10) | 2 (11) | 1 (7) | 1 (11) | |
| PACIFIC DOGWOOD | | | | 2 (23) | | 2 (11) | 2 (7) |
| CALIFORNIA BAY | 6 (52) | | 1 (10) | 1 (11) | 2 (42) | | 1 (3) |
| BLACK OAK | | | 1 (10) | 1 (34) | 2 (7) | | 1 (15) |
| PACIFIC YEW | 1 (8) | | 1 (10) | | 1 (7) | 1 (5) | |
| BIGLEAF MAPLE | | 2 (100) | 1 (20) | 1 (11) | | 2 (16) | 1 (7) |
| PORT-ORFORD CEDAR | 1 (7) | 5 (20) | | | | | |
| OREGON WHITE OAK | | | 1 (50) | 3 (3) | 1 (21) | | 2 (11) |
| CALIFORNIA BAY | 1 (53) | | | | 3 (50) | | |
| WESTERN WHITE PINE | 1 (25) | | | | | | |
| ALDER | | 2 (40) | | | | | |
| JEFFREY PINE | 2 (10) | | | | 1 (14) | | 1 (19) |

Table 8. Comparison of vegetation variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/QUVA-LIDEE | PSME-ALOR/ACCI/MOSI | PSME-QUGA2/GRASS | PSME-QUKE | PSME-LIDE3/FECA | PSME-QUCH2-LIDE2/ROCKPILE | PSME-QUCH2-ARME3/RHDI |
| SHRUBS (% COVER) (CONSTANCY) | | | | | | | |
| POISON OAK | | | 4 (50) | 5 (73) | 2 (50) | 2 (33) | 7 (80) |
| DWARF OREGON-GRAPE | 4 (16) | 2 (40) | 1 (20) | 1 (3) | 3 (14) | 2 (22) | 1 (15) |
| HAZELNUT | | | 1 (10) | 2 (50) | | 13 (16) | 4 (30) |
| RED HUCKLEBERRY | 15 (100) | | | | | | |
| WILD ROSE | 1 (75) | 2 (40) | 1 (50) | 1 (15) | 1 (35) | 1 (11) | 1 (11) |
| TRAILING BLACKBERRY | 1 (25) | | 1 (10) | 1 (3) | 1 (7) | 1 (11) | |
| SNOWBERRY | | | 1 (30) | 1 (3) | 1 (7) | 1 (22) | 1 (19) |
| HUCKLEBERRY OAK | 49 (100) | | | | 13 (21) | 8 (11) | 10 (3) |
| PACIFIC RHODODENDRON | 12 (16) | | | | | 10 (5) | |
| SADLER OAK | 2 (7) | 1 (20) | | | | 10 (16) | |
| SALAL | 9 (16) | 2 (20) | | | | 11 (11) | |
| OCEANSPRAY | 2 (25) | | 2 (20) | 1 (3) | 3 (14) | 2 (22) | |
| ORANGE HONEYSUCKLE | | | | 2 (30) | 4 (14) | 3 (22) | 1 (3) |
| HAIRY HONEYSUCKLE | | | | 3 (15) | 1 (14) | 1 (11) | 1 (26) |
| PYGMY HOLLYGRAPE | 2 (66) | | | 1 (15) | 2 (14) | 1 (5) | |
| PINEMAT MANZANITA | 4 (25) | | | | | 10 (5) | 3 (3) |
| DEERBRUSH | | | | 2 (19) | | 1 (5) | 2 (15) |
| WESTERN SERVICEBERRY | | | | | | | |
| GREENLEAF MANZANITA | 2 (8) | | | | 3 (21) | 17 (16) | 5 (3) |
| VINE MAPLE | | 6 (100) | | | | | |
| SLENDER SALAL | | | | | | | |
| OREGON BOXWOOD | 1 (8) | | | | 1 (7) | 2 (5) | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BOXLEAF SILKTASSEL | 5 (58) | | | | | 3 (11) | |
| COFFEEBERRY | 2 (58) | | | | 2 (7) | | |
| BLACKCAP | | 2 (40) | | 1 (3) | 2 (14) | | 1 (3) |
| GOOSEBERRY | | | | | | | |
| THIMBLEBERRY | | 3 (80) | | 1 (3) | | 1 (5) | |
| DWARF TANBARK | 14 (83) | | | | | | |
| CREEPING OREGON-GRAPE | 2 (8) | | | | 2 (14) | 1 (5) | |

Table 8. Comparison of vegetation variables by plant association in the Douglas-fir-alder, Douglas-fir-white oak, Douglas-fir-black oak, Douglas-fir-incense cedar, and Douglas-fir-canyon live oak sub-series.

| | PLANT ASSOCIATION | | | | | | |
|---|---|---|---|---|---|---|---|
| VARIABLE | PSME/QUVA-LIDEE | PSME-ALOR/ACCI/MOSI | PSME-QUGA2/GRASS | PSME-QUKE | PSME-LIDE3/FECA | PSME-QUCH2-LIDE2/ROCKPILE | PSME-QUCH2-ARME3/RHDI |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | | |
| WESTERN MODESTY | 5 (83) | | 14 (20) | 5 (11) | 5 (50) | 7 (44) | 2 (15) |
| PRINCE'S PINE | 3 (75) | | | 2 (15) | 2 (7) | 2 (50) | 2 (7) |
| SWORDFERN | 4 (33) | 7 (100) | 1 (90) | 1 (26) | 1 (64) | 1 (44) | 2 (26) |
| BRACKENFERN | 1 (8) | 2 (80) | | 1 (42) | 1 (7) | 1 (22) | 1 (23) |
| HAWKWEED | 1 (8) | | 1 (70) | 1 (38) | 1 (92) | 1 (38) | 1 (46) |
| LITTLE PRINCE'S PINE | | | | 1 (38) | 1 (28) | 1 (38) | 1 (38) |
| IRIS | 1 (58) | | 2 (20) | 1 (30) | 1 (71) | 1 (38) | 1 (38) |
| BEARGRASS | 3 (91) | | | | 2 (14) | | |
| RATTLESNAKE PLANTAIN | 1 (58) | | | 1 (11) | 1 (28) | 1 (11) | |
| WINTERGREEN | 1 (8) | | | 1 (30) | 1 (7) | 1 (11) | 1 (11) |
| STARFLOWER | 1 (58) | | | 1 (26) | 2 (21) | | 1 (7) |
| VANILLA LEAF | | | | 4 (7) | | 4 (16) | 1 (3) |
| HOOKER'S FAIRYBELL | 1 (33) | | 1 (10) | 1 (19) | 1 (7) | | |
| TWINFLOWER | 2 (8) | | | | | | |
| RAYLESS ARNICA | 1 (25) | | | 1 (11) | 1 (14) | 1 (16) | 1 (7) |
| WHITE INSIDE-OUT FLOWER | | | | 1 (7) | 1 (7) | 1 (16) | |
| SMALL BEDSTRAW | | | 3 (60) | 1 (15) | | | 1 (7) |
| TRAILPLANT | | 1 (20) | 1 (40) | 1 (7) | 2 (7) | | 1 (3) |
| REDWOOD VIOLET | | | | | | | |
| FALSE SOLOMON'S SEAL | 1 (41) | 1 (60) | 1 (30) | 1 (4) | 1 (7) | 1 (5) | 1 (3) |
| BEDSTRAW | 1 (16) | 3 (60) | | 1 (3) | 1 (28) | 1 (5) | 1 (19) |
| TOOTHED PYROLA | 1 (50) | | | 1 (12) | 1 (7) | 1 (5) | |
| CALIFORNIA HAREBELL | | | | 1 (15) | 1 (14) | | 1 (3) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SLENDER-TUBED IRIS | | | | 1 (30) | 5 (7) | | 1 (3) |
| MOUNTAIN HEMP | | | | 1 (7) | 1 (14) | 1 (11) | 1 (23) |
| DOGBANE | | | | 1 (11) | 1 (7) | 1 (5) | 1 (23) |
| SWEET CICELY | | | 3 (80) | 1 (11) | 1 (7) | | 1 (11) |
| LEAFLESS PYROLA | | | | 1 (23) | 1 (14) | | 1 (15) |
| AMERICAN VETCH | | | | 1 (19) | 1 (7) | | 1 (3) |
| HOUND'S TONGUE | | | 2 (70) | 1 (7) | | | 1 (11) |
| WHITE TRILLIUM | | 1 (60) | | 1 (11) | | | |
| STREAM VIOLET | | | 1 (10) | | | | 1 (3) |
| WILD STRAWBERRY | | | 1 (70) | | | | |
| WOODLAND TARWEED | | | 2 (70) | 1 (7) | 1 (7) | | 1 (3) |
| WESTERN VIOLET | 1 (8) | | | 1 (11) | 1 (7) | | |
| WINECUP LILY | 1 (53) | | | | | | |
| MILKWORT | 1 (8) | | | | 1 (28) | | |
| SPREADING DOGBANE | | | | 2 (11) | 1 (7) | | |
| GAMBLEWEED | | | 2 (70) | | | | 1 (3) |
| JAPANESE HEDGE PARSLEY | | | 2 (50) | | | | 1 (15) |
| INSIDE-OUT FLOWER | 1 (7) | | | | 3 (7) | | |
| IMBRICATE SWORDFERN | 1 (16) | | | | 1 (7) | 1 (11) | 1 (7) |
| WESTERN FESCUE | 1 (41) | | | 1 (19) | 1 (7) | | 1 (11) |
| CALIFORNIA FESCUE | 11 (16) | | 18 (40) | 6 (34) | 56 (100) | | 1 (19) |
| BEARDED FESCUE | | 15 (20) | 5 (70) | | 4 (14) | | 1 (7) |
| SEDGE | | 4 (60) | 1 (20) | | 2 (14) | | |
| BROME | | | | 1 (7) | 5 (21) | | |

Table 9. Confirmed locations of plant associations in the Douglas-fir-chinquapin sub-series by National Forest and Ranger District.

| LOCATION | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| **SIX RIVERS NF** | | | | | | |
| GASQUET RD | X | X | | X | X | |
| ORLEANS RD | X | X | X | X | X | |
| LOWER TRINITY RD | | X | | | | |
| MAD RIVER RD | | | | | | |
| **KLAMATH NF** | | | | | | |
| UKONOM RD | X | X | X | X | X | X |
| HAPPY CAMP RD | X | X | | | | X |
| OAK KNOLL RD | | | | | | |
| SALMON RIVER RD | X | X | | | | |
| SCOTT RIVER RD | | | | | | |

Table 10. Comparison of environment and soil variables by plant association in the Douglas-fir-chinquapin sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| NUMBER OF PLOTS | 22 | 24 | 7 | 14 | 57 | 14 |
| ENVIRONMENT: ELEVATION (ft) | 2702 | 3458 | 3500 | 3200 | 3696 | 3323 |
| ASPECT (deg) | S.WEST, EAST, SOUTH | SOUTH, N. WEST | EAST | N.WEST, N.EAST | N.WEST, N.EAST | N. WEST, EAST |
| SLOPE (%) | 57 | 48 | 25 | 48 | 40 | 35 |
| RADIATION INDEX | .524 | .461 | .530 | .349 | .422 | .454 |
| SURFACE ROCK(%) | 6 | 5 | 6 | 6 | 12 | 5 |
| SOILS: SOIL DEPTH (in) | 33 | 34 | 35 | 32 | 36 | 40+ |
| AWC (in) | 3.4 | 3.2 | 3.6 | 3.0 | 3.2 | 4.4 |
| A HORIZON | | | | | | |
| THICKNESS (in) | 7 | 6 | 10 | 7 | 6 | 9 |
| CO. FRAG. (%) | 36 | 32 | 19 | 40 | 25 | 36 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | dark yellowish brown, dark brown, very dark grayish brown | dark brown, dark yellowish brown | dark brown, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown | dark brown, dark yellowish brown, very dark grayish brown |
| TEXTURE | gl, l, xgl, vgl | gl, vgl, sl, gsl | l, gl, gsil | gl, xgl, l | gl, vgl, l | gl, vgl, gcl, vgsl |
| PARENT MATERIAL | mafic, phyllite, greenstone, schist | phyllite, schist | schist, phyllite | phyllite, schist, mafic, greenstone | schist, phyllite | mafic, greenstone, granite |
| SOIL FAMILY | Clallam, Goldridge Deadwood | Clallam, Bentpeak, Deadwood, Hugo | Holland, Hurlbut, Inville | Clallam, Bentpeak, Goldridge | Bentpeak, Kindig, Doerock, Deadwood | Clallam, Goldridge |

Table 11. Comparison of stand structure variables by plant association in the Douglas-fir-chinquapin sub-series.

| | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| VARIABLE | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| NUMBER OF PLOTS | 18 | 16 | 5 | 10 | 40 | 13 |
| STAND AGE | 302 | 433 | 359 | 355 | 318 | 361 |
| SOFTWOOD | | | | | | |
| VOLUME ($ft^3$) | 7776 | 9425 | 6909 | 8167 | 6035 | 9424 |
| BASAL AREA ($ft^2$) | 207 | 244 | 180 | 232 | 186 | 240 |
| HARDWOOD | | | | | | |
| VOLUME ($ft^3$) | 1140 | 595 | 1415 | 495 | 266 | 1450 |
| BASAL AREA ($ft^2$) | 58 | 36 | 97 | 26 | 20 | 88 |
| SITE CLASS | 1-3 | 1A-2 | 1A-1 | 1A-2 | 1-3 | 1A-2 |
| SITE INDEX | 125-175 | 150-200 | 175-200 | 150-200 | 125-175 | 150-200 |
| STAND DENSITY INDEX | 419 | 402 | 441 | 368 | 309 | 514 |

Table 12. Comparison of vegetation variables by plant association in the Douglas-fir-chinquapin sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| **VEGETATION LAYER (% COVER)** | | | | | | |
| TOTAL COVER | 87 | 91 | 95 | 96 | 96 | 91 |
| GRASS COVER | 3 | 1 | 0 | 1 | 1 | 1 |
| FORB COVER | 7 | 16 | 44 | 10 | 17 | 18 |
| SHRUB COVER | 7 | 19 | 6 | 66 | 62 | 13 |
| TREE COVER | 82 | 75 | 85 | 75 | 68 | 84 |
| **TREE OVERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 46 (100) | 53 (100) | 45 (100) | 62 (100) | 46 (100) | 39 (100) |
| PACIFIC MADRONE | 6 (81) | 7 (45) | 7 (85) | 6 (21) | 5 (17) | 6 (50) |
| SUGAR PINE | 9 (59) | 10 (41) | 13 (28) | 6 (42) | 13 (66) | 12 (35) |
| CANYON LIVE OAK | 23 (95) | 2 (12) | | 4 (14) | 4 (7) | |
| CHINQUAPIN | 4 (13) | 13 (100) | 46 (100) | 11 (100) | 19 (91) | 24 (100) |
| TANOAK | 5 (63) | 6 (45) | 5 (28) | 5 (57) | 11 (15) | 14 (42) |
| BLACK OAK | 4 (36) | 3 (4) | | | 5 (1) | 2 (14) |
| BIGLEAF MAPLE | 4 (9) | 2 (8) | | 7 (21) | 10 (1) | 2 (7) |
| INCENSE CEDAR | 4 (4) | 3 (4) | | 1 (7) | 5 (5) | 3 (28) |
| JEFFREY PINE | | | 1 (14) | | 3 (1) | 1 (7) |
| PACIFIC DOGWOOD | 2 (4) | 4 (16) | 3 (28) | 10 (14) | 6 (8) | 3 (42) |
| WHITE FIR | 1 (4) | 2 (29) | | 1 (14) | 6 (15) | 8 (78) |
| OREGON WHITE OAK | | 2 (33) | | | 5 (6) | |
| PORT-ORFORD CEDAR | 2 (4) | | | 3 (28) | 5 (1) | |
| CALIFORNIA BAY | | | | | | |
| PACIFIC YEW | | | | 4 (14) | 7 (3) | 2 (7) |
| ALDER | | | | 5 (7) | | |

Table 12. Comparison of vegetation variables by plant association in the Douglas-fir-chinquapin sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH21 LIDE2/BENE1 |
| **TREE UNDERSTORY (% COVER) (CONSTANCY)** | | | | | | |
| DOUGLAS-FIR | 6 (90) | 3 (83) | 2 (100) | 1 (64) | 3 (96) | 3 (92) |
| TANOAK | 5 (100) | 8 (75) | 3 (85) | 10 (100) | 4 (35) | 16 (78) |
| CANYON LIVE OAK | 10 (95) | 4 (41) | 1 (14) | 1 (35) | 1 (26) | 1 (7) |
| SUGAR PINE | 2 (68) | 1 (58) | 1 (28) | 1 (28) | 2 (45) | 1 (35) |
| CHINQUAPIN | 3 (18) | 8 (83) | 2 (85) | 3 (42) | 4 (77) | 10 (77) |
| PACICIC MADRONE | 1 (18) | 1 (16) | 1 (14) | 1 (14) | 1 (8) | 1 (14) |
| INCENSE CEDAR | | 1 (20) | | 1 (14) | 2 (3) | 1 (28) |
| WHITE FIR | 1 (9) | 3 (37) | 1 (14) | 1 (28) | 1 (29) | 8 (100) |
| PACIFIC DOGWOOD | 1 (4) | | | 1 (7) | 1 (1) | 1 (50) |
| CALIFORNIA BAY | 3 (9) | 2 (29) | | | | |
| BLACK OAK | 1 (4) | 1 (4) | | | 1 (1) | 1 (7) |
| PACIFIC YEW | 2 (4) | 1 (29) | | 1 (21) | 1 (10) | 1 (28) |
| BIGLEAF MAPLE | | | | 2 (7) | | |
| PORT-ORFORD CEDAR | | | | 1 (21) | 1 (3) | 1 (7) |
| OREGON WHITE OAK | | | | | | |
| ALDER | | | | | | |
| JEFFREY PINE | | | 2 (14) | | | 1 (7) |

Table 12. Comparison of vegetation variables by plant association in the Douglas-fir-chinquapin sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| **SHRUBS (% COVER) (CONSTANCY)** | | | | | | |
| POISON OAK | 3 (63) | | | | 1 (1) | 2 (7) |
| DWARF OREGON-GRAPE | 5 (27) | 6 (54) | 2 (42) | 7 (100) | 4 (50) | 6 (78) |
| HAZELNUT | 2 (13) | 3 (50) | | 5 (7) | 1 (8) | 2 (21) |
| RED HUCKLEBERRY | 1 (4) | 4 (37) | 2 (28) | 3 (64) | 5 (70) | 4 (42) |
| WILD ROSE | 1 (4) | 1 (20) | 2 (14) | 2 (35) | 1 (22) | 1 (7) |
| TRAILING BLACKBERRY | 1 (13) | 5 (41) | 1 (42) | 1 (28) | 1 (28) | 1 (21) |
| SNOWBERRY | 1 (9) | 5 (33) | 1 (28) | 1 (7) | 1 (8) | 4 (28) |
| HUCKLEBERRY OAK | 25 (4) | 8 (20) | | 20 (7) | 3 (5) | 7 (14) |
| PACIFIC RHODODENDRON | | 15 (8) | 2 (14) | 34 (100) | 35 (100) | |
| SADLER OAK | 1 (4) | 6 (16) | 4 (57) | 1 (7) | 16 (100) | 3 (28) |
| SALAL | 8 (4) | 14 (12) | 6 (28) | 56 (64) | 36 (45) | |
| OCEANSPRAY | | 3 (12) | | 1 (7) | 1 (14) | |
| ORANGE HONEYSUCKLE | 2 (27) | 1 (4) | | | | |
| HAIRY HONEYSUCKLE | 1 (9) | | | | | |
| PYGMY HOLLYGRAPE | 1 (9) | | | | | 1 (7) |
| PINEMAT MANZANITA | 1 (4) | 6 (16) | 5 (14) | | 4 (28) | |
| DEERBRUSH | 1 (13) | | | | | |
| WESTERN SERVICEBERRY | | 2 (8) | | | 6 (18) | |
| GREENLEAF MANZANITA | | 1 (8) | | | 3 (12) | |
| VINE MAPLE | 2 (4) | 7 (8) | | 16 (14) | | 2 (28) |
| SLENDER SALAL | | 12 (8) | | 2 (21) | 3 (49) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| OREGON BOXWOOD | 1 (9) | 2 (12) | | 2 (14) | 4 (19) | |
| BOXLEAF SILKTASSEL | | | | | | |
| COFFEEBERRY | | | | | | |
| BLACKCAP | 1 (4) | 5 (4) | | | | 1 (14) |
| GOOSEBERRY | 1 (4) | 1 (4) | | | 1 (6) | |
| DWARF TANBARK | | | | | 5 (1) | |
| THIMBLEBERRY | | 2 (12) | | | 1 (1) | 1 (14) |
| CREEPING OREGON-GRAPE | 1 (4) | 1 (4) | | 1 (7) | | |

Table 12. Comparison of vegetation variables by plant association in the Douglas-fir-chinquapin sub-series.

| VARIABLE | PLANT ASSOCIATION | | | | | |
|---|---|---|---|---|---|---|
| | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 | PSME-CACH2/XETE | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| **HERBS & GRASSES (% COVER) (CONSTANCY)** | | | | | | |
| WESTERN MODESTY | 6 (54) | 3 (50) | | 1 (57) | 1 (5) | 8 (71) |
| PRINCE'S PINE | 2 (18) | 8 (79) | 1 (57) | 3 (57) | 2 (59) | 4 (92) |
| SWORDFERN | 1 (36) | 1 (20) | | 2 (50) | 1 (8) | 1 (7) |
| BRACKENFERN | 1 (72) | 1 (79) | 2 (85) | 2 (35) | 4 (33) | 1 (42) |
| HAWKWEED | 1 (40) | 1 (29) | | 1 (21) | 1 (3) | 1 (14) |
| LITTLE PRINCE'S PINE | 1 (63) | 1 (37) | 1 (42) | 1 (28) | 1 (42) | 1 (14) |
| IRIS | 1 931) | 1 (33) | 1 (14) | 1 (21) | 1 (5) | 1 (35) |
| BEARGRASS | 1 (4) | 4 (50) | 47 (85) | 4 (64) | 16 (100) | 3 (14) |
| RATTLESNAKE PLANTAIN | 1 (18) | 1 (62) | | 1 (71) | 1 (28) | 1 (71) |
| WINTERGREEN | 1 (18) | 1 (45) | 1 (28) | 1 (35) | 1 (31) | 1 (78) |
| STARFLOWER | 1 (13) | 1 (12) | | 1 (21) | 2 (3) | 1 (42) |
| VANILLA LEAF | 3 (4) | 5 (45) | | 1 (50) | 1 (14) | 5 (78) |
| HOOKER'S FAIRYBELL | 1 (4) | 1 (29) | | 1 (14) | 1 (10) | 1 (50) |
| TWINFLOWER | 3 (4) | 5 (37) | | 3 (50) | 2 (8) | 3 (57) |
| RAYLESS ARNICA | 2 (18) | 1 (12) | | 1 (7) | 1 (5) | 1 (7) |
| WHITE INSIDE-OUT FLOWER | | 2 (25) | 15 (14) | 4 (28) | 1 (14) | 1 (28) |
| SMALL BEDSTRAW | 1 (13) | 1 (4) | | | | 1 (7) |
| TRAILPLANT | 1 (4) | 1 (8) | | 1 (7) | | 1 (21) |
| REDWOOD VIOLET | 1 (4) | 1 (29) | 1 (14) | 2 (64) | 1 (12) | 1 (28) |
| FALSE SOLOMON'S SEAL | | 1 (12) | | 1 (21) | 1 (3) | 1 (28) |
| BEDSTRAW | 1 (9) | 2 (4) | | | | |
| TOOTHED PYROLA | 1 (9) | 1 (20) | | 1 (7) | 1 (10) | |
| CALIFORNIA HAREBELL | 1 (4) | 1 (4) | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| SLENDER-TUBED IRIS | 1 (31) | 1 (4) | | 1 (7) | | |
| MOUNTAIN HEMP | 1 (9) | 1 (20) | 1 (14) | 1 (7) | | |
| DOGBANE | 1 (9) | 1 (8) | | | 1 (12) | 1 (56) |
| SWEET CICELY | | | | 1 (7) | | |
| LEAFLESS PYROLA | 1 (4) | 1 (4) | | 1 (7) | | 1 (7) |
| AMERICAN VETCH | 1 (9) | | | | | |
| PACIFIC HOUND'S-TONGUE | | | | | | |
| WHITE TRILLIUM | | 1 (4) | | 1 (21) | | 1 (7) |
| STREAM VIOLET | | 1 (12) | | 1 (7) | 1 (1) | 1 (7) |
| WILD STRAWBERRY | | 1 (4) | | 1 (7) | | |
| WOODLAND TARWEED | | | | | | |
| WESTERN VIOLET | 1 (4) | 1 (4) | | | | |
| WINECUP LILY | | | | | | |
| MILKWORT | | | | | | |
| SPREADING DOGBANE | 1 (18) | | | | | |
| GAMBLEWEED | | | | | | |
| JAPANESE HEDGE PARSLEY | | | | | | |
| INSIDE-OUT FLOWER | 2 (4) | 2 (4) | | | 4 (7) | |
| IMBRICATE SWORDFERN | 1 (4) | | | | | |
| WESTERN FESCUE | 1 (9) | 1 (12) | | 1 (14) | | 1 (14) |
| CALIFORNIA FESCUE | 21 (9) | | | | | |
| BEARDED FESCUE | | | | | | |
| SEDGE | | 1 (4) | | | 1 (1) | |
| BROME | 4 (4) | | | | | |

Table 13. Timber management capability rating for plant associations within the Douglas-fir series.

| CAPABILITY RATING | | |
|---|---|---|
| LOW | MODERATE | HIGH |
| PSME-PIJE/FECA | PSME/ACCI-BENE1 | PSME/COCOC |
| PSME/QUVA | PSME-LIDE2/WHMO | PSME-ACMA/POMU1 |
| PSME-UMCA1/RHDI | PSME-QUKE | PSME-QUKE |
| PSME/QUVA-LIDEE | PSME-QUCH2-LIDE2 | PSME-CACH2-LIDE2 |
| PSME-ALOR/ACCI/MOSI | PSME-CACH2/RHMA-BENE1 | PSME-CACH2/XETE |
| PSME-QUGA2/GRASS | PSME-CACH2/RHMA-QUSA/XETE | PSME-CACH2-LIDE2/BENE1 |
| PSME-LIDE3/FECA | | |
| PSME-QUCH2/ROCKPILE | | |
| PSME-QUCH2-ARME3/RHDI | | |

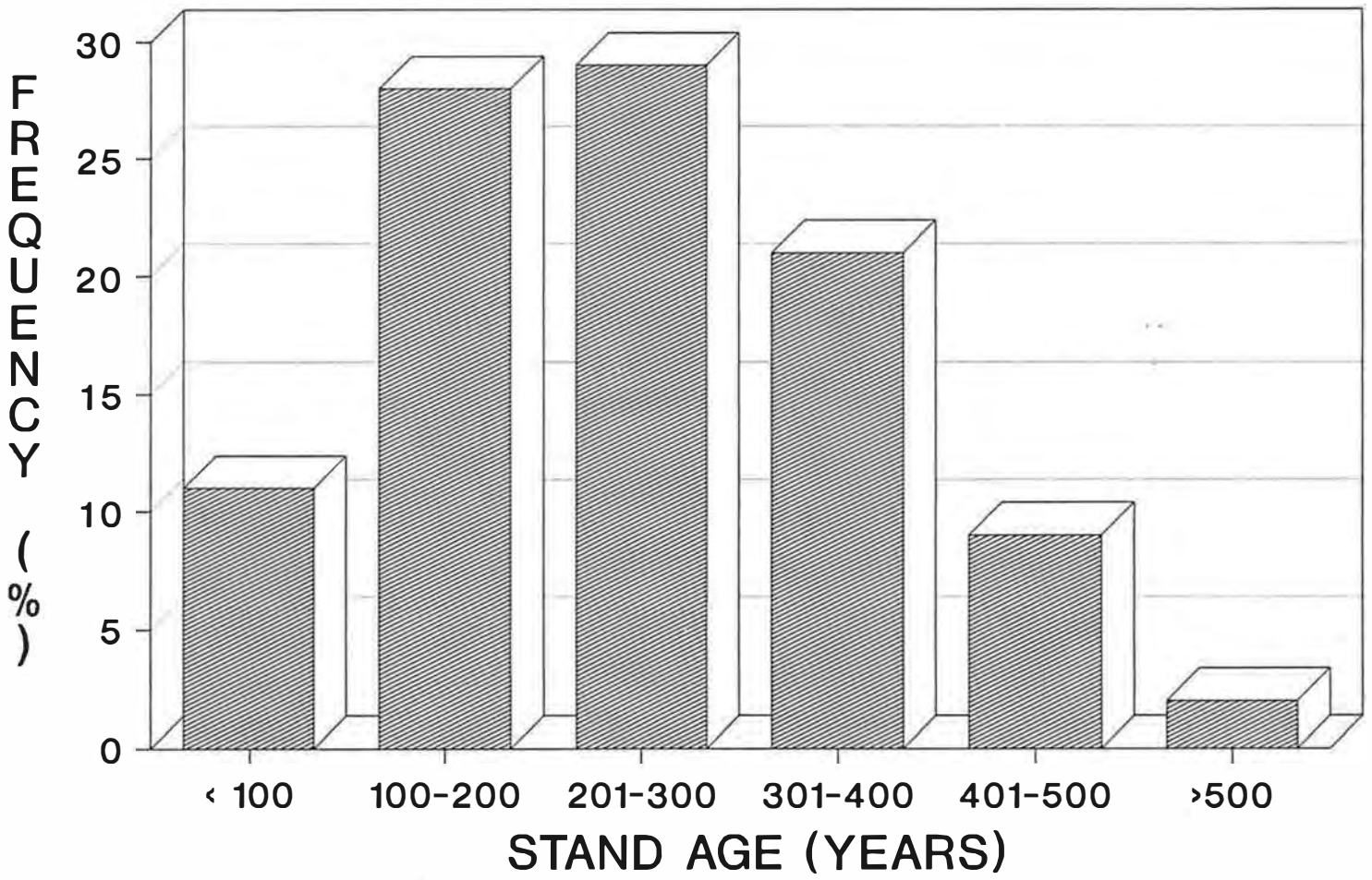



Figure 12. Age distribution of untreated stands in the Douglas-fir series.

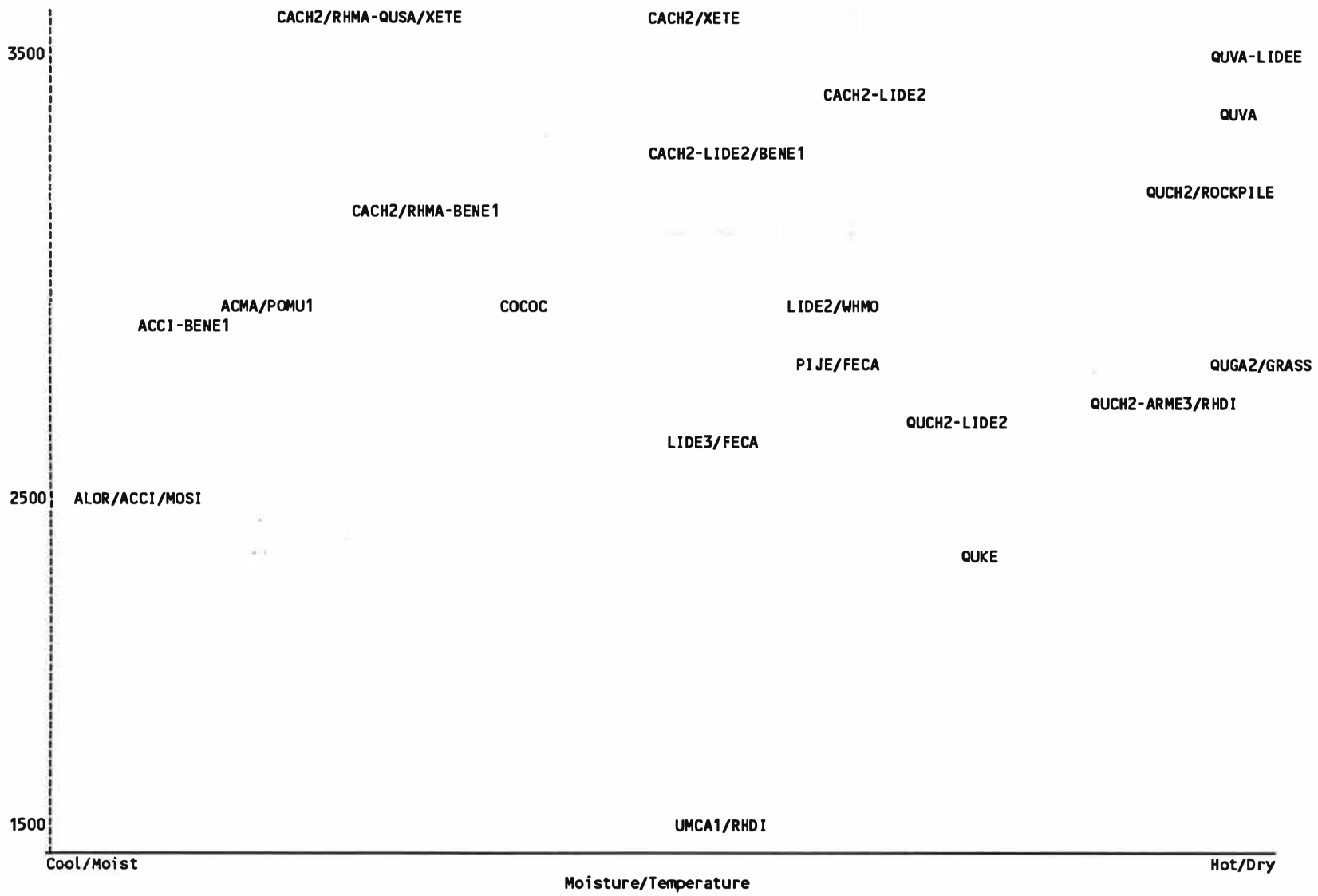



Figure 13. Relative distribution of plant associations within the Douglas-fir series in relation to elevation, temperature, and moisture.

050001
Table 1. Environment and timber summary for the Douglas-fir-tanoak/western modesty type (PSME-LIDE2/WHMO) N=13.

| RANGER DISTRICT | HAPPY CAMP, ORLEANS, GASQUET, LOWER TRINITY, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2943 | 1920 | 4080 | 213 |
| MICRO-POSITION | upper 1/3-lower 1/3 slopes | | | |
| SLOPE (%) | 52 | 22 | 75 | 7 |
| ASPECT | N. EAST WEST** | | | |
| SOLAR RADIATION INDEX * | .423 | .248 | .580 | .035 |
| SURFACE ROCK | 5 | 1 | 7 | 2 |
| STAND AGE | 257 | 18 | 380 | 30 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8825 | 4536 | 12,477 | 1580 |
| BASAL AREA ($ft^2$) | 239 | 107 | 413 | 39 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 898 | 0 | 1088 | 372 |
| BASAL AREA ($ft^2$) | 45 | 0 | 53 | 19 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 411 | 254 | 491 | 57 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**West aspects are modified by topographic shading.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Gasquet, Happy Camp, Ukonom, Orleans, and Lower Trinity Ranger Districts between 1920 and 4080 feet in elevation, in the upper 1/3 through lower 1/3 slope positions. Slopes are gentle to steep, with undulating, concave, horizontal micro-relief and linear, undulating, vertical micro-relief. Sites are generally cool and moist, northeast and west facing with very low to moderate surface rock.

Table 2. Soils summary for the Douglas-fir-tanoak/western modesty type (PSME-LIDE2/WHMO) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 29 | >40 |
| AWC (inches) | 2.7 | 1.0 | 5.2 |
| PARENT ROCK | schist, phyllite, greenstone, mafic | | |
| SOIL FAMILY | Clallam, Hugo | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 2 | 14 |
| COARSE FRAGMENT (%) | 39 | 15 | 55 |
| pH | 6.1 | 5.5 | 6.5 |
| COLOR | very dark brown, dark reddish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, xgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 43 | 20 | 64 |
| pH | 6.2 | 5.5 | 7.1 |
| COLOR | dark yellowish brown, dark brown, yellowish red | | |
| TEXTURE | vgl, gl, xgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-2 lands (base age 300 years), with site index 150-200. Softwood cubic volume and basal area are very low to very high, while hardwood cubic volume and basal area were very low to high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep and occasionally moderately deep, derived from schist, phyllite, greenstone, and mafic parent material and included in the Clallam and Hugo soil families. The A horizons are generally moderately thick and are very dark brown, dark reddish brown, and very dark grayish brown, gravelly, very gravelly and extremely gravelly sandy loams, with

moderate to high pH and generally skeletal coarse fragments and moderate water holding capacity.

In general, this type was moderate in productivity due to variation in elevation, soil temperature, and moderate water holding capacity. In lower elevation warm sites with adequate moisture, tanoak cover increases, while high elevation cooler sites tanoak exists primarily in shrub form.

**VEGETATION:** Total vegetation cover was high (90%) and was characterized by a moderate tree layer (70% cover), dominated by Douglas-fir and Pacific madrone. Tanoak, and Douglas-fir were the primary regenerating species. Tanoak generally fails to reach the tree layer due to low available moisture and cold soil temperatures in the upper elevation portions of this type. The shrub layer is moderate (18% cover) and dominated by snowberry, wild rose, hazelnut, and oceanspray. The herb layer is moderate (23% cover), with prince's pine, little prince's pine, starflower, vanilla leaf, Hooker's fairybells, and western modesty as the dominant species. The grass layer is sparse (2% cover) and respresented by western fescue.

Frequency of stand replacing wildfires is moderate, due to high concentrations of ladder fuels. Stands rarely reach 350 years stand age.

**MANAGEMENT:** Management opportunities within this type are moderate due to cool sites, low soil temeratures on higher elevation sites, and moderate water holding capacity and high cover of competing species such as tanoak. Because of this moderate intensity management activities such as shelterwood and individual tree mark are recommended. These sites may be well suited to uneven-aged management since Douglas-fir is regenerating successfully under its own canopy. If shlelterwood is used, enough canopy needs to be retained to avoid increasing soil temperatures and stimulating tanoak competition.

Table 3. Vegetation summary for the Douglas-fir-tanoak/western modesty type (PSME-LIDE2/WHMO) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 70 | 99 | 3 |
| GRASS COVER | 2 | 0 | 5 | 3 |
| HERB COVER | 23 | 2 | 25 | 6 |
| SHRUB COVER | 18 | 15 | 38 | 3 |
| TREE COVER | 72 | 60 | 95 | 8 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| PACIFIC MADRONE (ARME3) | 7 | 91 |
| SUGAR PINE (PILA) | 4 | 66 |
| CANYON LIVE OAK (QUCH2) | 10 | 41 |
| TANOAK (LIDE2) | 3 | 58 |
| INCENSE CEDAR (LIDE3) | 12 | 33 |
| WHITE FIR (ABCO) | 2 | 30 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 92 |
| TANOAK (LIDE2) | 5 | 92 |
| CANYON LIVE OAK (QUCH2) | 6 | 69 |
| SUGAR PINE (PILA) | 1 | 61 |
| PACIFIC MADRONE (ARME3) | 2 | 46 |
| INCENSE CEDAR (LIDE3) | 2 | 38 |
| PACIFIC DOGWOOD (CONU2) | 1 | 38 |
| BLACK OAK (QUKE) | 1 | 38 |
| CALIFORNIA BAY (UMCA1) | 2 | 23 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 7 | 61 |
| OREGON-GRAPE (BENE1) | 3 | 53 |
| HAZELNUT (COCOC) | 3 | 61 |
| WILD ROSE (ROGY) | 2 | 76 |
| TRAILING BLACKBERRY (RUUR) | 1 | 46 |
| SNOWBERRY (SYMO) | 1 | 84 |
| HUCKLEBERRY OAK (QUVA) | 11 | 23 |
| OCEANSPRAY (HODI) | 3 | 76 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 23 |
| DEER BRUSH (CEIN) | 4 | 38 |
| PYGMY OREGON-GRAPE (BEAQ) | 2 | 23 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WESTERN MODESTY (WHMO) | 11 | 92 |
| PRINCE'S PINE (CHUMO) | 6 | 61 |
| SWORDFERN (POMU1) | 1 | 23 |
| BRAKENFERN (PTAQL) | 1 | 38 |
| HAWKWEED (HIAL) | 1 | 53 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 69 |
| IRIS (IRI) | 2 | 46 |
| BEARGRASS (XETE) | 3 | 23 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 38 |
| STARFLOWER (TRLA3) | 1 | 53 |
| VANILLA LEAF (ACTR) | 3 | 76 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 61 |
| TWINFLOWER (LIBOL) | 2 | 23 |
| RAYLESS ARNICA (ARDI) | 1 | 23 |
| TRAILPLANT (ADBI) | 3 | 30 |
| DOGBANE (APO) | 1 | 30 |
| WESTERN FESCUE (FEOC1) | 1 | 23 |
| WINTERGREEN (PYPI) | 1 | 23 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 23 |

050401
Table 4. Environment and timber summary for the Douglas-fir-Jeffrey pine/California fescue type (PSME-PIJE/FECA) series N=11.

| EXTENT | Ukonom, Happy Camp, Orleans, Lower Trinity, Gasquet | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2818 | 1740 | 4240 | 349 |
| MICRO-POSITION | lower 1/3-upper 1/3 slopes | | | |
| SLOPE (%) | 36 | 25 | 58 | 5 |
| ASPECT | S. EAST WEST | | | |
| SOLAR RADIATION INDEX * | .459 | .397 | .547 | .023 |
| SURFACE ROCK | 2 | 0 | 4 | 1 |
| STAND AGE | 195 | 100 | 410 | 33 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 4259 | 3227 | 5666 | 573 |
| BASAL AREA ($ft^2$) | 139 | 120 | 160 | 19 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 331 | 0 | 831 | 203 |
| BASAL AREA ($ft^2$) | 13 | 0 | 40 | 8 |
| SITE CLASS | 2,3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 305 | 147 | 338 | 67 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Ukonom, Happy Camp, Orleans, Lower Trinity, and Gasquet Ranger Districts between 1740 and 4240 feet in elevation in the lower 1/3 through upper 1/3 slope position. Slopes are gentle to moderately steep, with undulating, convex, and linear, horizontal micro-relief and linear, undulating and convex, vertical micro-relief. Sites are generally warm and dry, southeast and west facing with very low to low surface rock.

Table 5. Soils summary for the Douglas-fir-Jeffrey pine/California fescue type (PSME-PIJE/FECA) N=11.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 27 | 23 | >40 |
| AWC (inches) | 3.4 | 2.7 | 6.2 |
| PARENT ROCK | serpentine, greenstone | | |
| SOIL FAMILY | Weitchpec, Coyata | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 11 |
| COARSE FRAGMENT (%) | 22 | 15 | 32 |
| pH | 6.3 | 5.5 | 7.3 |
| COLOR | dark brown | | |
| TEXTURE | gl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 28 | 15 | 44 |
| pH | 5.8 | 5.6 | 7.5 |
| COLOR | dark reddish brown, dark brown, dark yellowish brown | | |
| TEXTURE | vgl, gl, gcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 2-3 lands (base age 300 years), with site index 125-150. Softwood cubic volume and basal area are very low to low, while hardwood cubic volume and basal area range from very low to moderate and stand density index is rated as very low to low.

**SOILS:** Soils in this type are moderately-deep to deep, derived from serpentine and greenstone parent material and included in the Weitchpec and Coyata soil families. The A horizons range from very thin to very thick, and are dark brown, gravelly and gravelly silt loams, with moderate to very high pH and very low to low coarse fragments and moderate to very high water holding capacity. Soil pH is dependent on micro-position, those sites in lower 1/3 slope positions tend to have lower (acid) pH's due to coluvial action, while those in upper 1/3 slope positions have higher (basic) pH's.

Table 6. Vegetation summary for the Douglas-fir-Jeffrey pine/California fescue type (PSME-PIJE/FECA) type N=11.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 85 | 99 | 2 |
| GRASS COVER | 45 | 36 | 94 | 11 |
| HERB COVER | 5 | 1 | 10 | 1 |
| SHRUB COVER | 7 | 1 | 14 | 2 |
| TREE COVER | 82 | 80 | 90 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| JEFFREY PINE (PIJE) | 14 | 100 |
| DOUGLAS-FIR (PSME) | 41 | 100 |
| INCENSE CEDAR (LIDE3) | 17 | 72 |
| PACIFIC MADRONE (ARME3) | 11 | 63 |
| TANOAK (LIDE2) | 13 | 27 |
| OREGON WHITE OAK (QUGA2) | 3 | 36 |
| CALIFORNIA BAY (UMCA1) | 27 | 27 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| JEFFREY PINE (PIJE) | 1 | 45 |
| DOUGLAS-FIR (PSME) | 2 | 90 |
| INCENSE CEDAR (LIDE3) | 2 | 90 |
| PACIFIC MADRONE (ARME3) | 7 | 45 |
| TANOAK (LIDE2) | 4 | 72 |
| CALIFORNIA BAY (UMCA1) | 6 | 63 |
| CANYON LIVE OAK (QUCH2) | 1 | 27 |
| WHITE FIR (ABCO) | 1 | 27 |
| **SHRUBS** | | |
| HUCKLEBERRY OAK (QUVA) | 5 | 27 |
| WILD ROSE (ROGY) | 1 | 36 |
| PYGMY OREGON GRAPE (BEPU) | 1 | 27 |
| HAZEL (COCOC) | 1 | 27 |
| POISON OAK (RHDI) | 4 | 45 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 27 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| IRIS (IRI) | 1 | 63 |
| PRINCE'S PINE (CHUMO) | 2 | 36 |
| HAWKWEED (HIAL) | 1 | 54 |
| BRACKENFERN (PTAQL) | 2 | 27 |
| STARFLOWER (TRLA3) | 1 | 45 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 36 |
| CLIFF-BRAKE (ONDE) | 1 | 36 |
| MILKWORT (POCO6) | 1 | 36 |
| SWORDFERN (POMU1) | 2 | 45 |
| MALLOW-LEAFED CHECKER (SIMA1) | 1 | 27 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 27 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 27 |
| VIOLET (VILO) | 1 | 27 |
| CALIFORNIA FESCUE (FECA) | 42 | 100 |
| WESTERN FESCUE (FEOC) | 3 | 36 |
| BLUE WILD RYE (ELGL) | 2 | 27 |
| MORNING GLORY (CONG) | 1 | 27 |
| FESCUE (FES2) | 1 | 36 |

**VEGETATION:** Total vegetation cover was high (91%) and was characterized by a dense tree layer (82% cover), dominated by Douglas-fir, Jeffrey pine, incense cedar and Pacific madrone. The shrub layer and herb layers were sparse (7% and 5% cover), with poison oak, hawkweed, starflower and swordfern as the dominant species. The high cover of grass (45%) was one of the distinguishing features of this type. This layer was dominated by California fescue.

Stand replacing wildfires play a key role in maintaining this type, as is evidenced by the range of natural stand age 100-410 years. Upper 1/3 slopes tend to be suseptible to frequent lightning strikes, which due to the dense grass layer, lead to frequent low intensity ground fires. Under dry conditions with adequate ladder fuels these low intensity ground fires lead to high intensity stand replacing fires.

**MANAGEMENT:** Management opportunities within this type are limited to low intensity individual tree selection due to the serpentine soils and their associated low productivity. Seedling competition with grass limits regeneration success.

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Table 7. Environment and timber summary for the Douglas-fir/huckleberry oak type (PSME/QUVA) N=26.

| RANGER DISTRICT | ORLEANS, UKONOM, HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3426 | 2620 | 4440 | 96 |
| MICRO-POSITION | upper 1/3-lower 1/3 slopes | | | |
| SLOPE (%) | 50 | 25 | 70 | 4 |
| ASPECT | N. EAST S. WEST | | | |
| SOLAR RADIATION INDEX * | .350 | .239 | .517 | .030 |
| SURFACE ROCK | 10 | 1 | 35 | 2 |
| STAND AGE | 301 | 111 | 557 | 20 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6863 | 3301 | 10069 | 529 |
| BASAL AREA ($ft^2$) | 225 | 120 | 360 | 14 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 202 | 0 | 913 | 84 |
| BASAL AREA ($ft^2$) | 10 | 0 | 67 | 4 |
| SITE CLASS | 3-5 | | | |
| SITE INDEX | 75-125 | | | |
| STAND DENSITY INDEX | 328 | 146 | 496 | 22 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Orleans, Ukonom, Happy Camp, and Gasquet Ranger Districts between 2620 and 4440 feet in elevation, generally in the upper 1/3 slope and occasionally in the middle and lower 1/3 slope positions. Slopes are gentle to steep , with linear, concave, and undulating, horizontal micro-relief and linear, convex, and undulating, vertical micro-relief. Sites are generally warm and dry, east and southwest facing with very low to high surface rock.

Table 8. Soils summary for the Douglas-fir/huckleberry oak type (PSME/QUVA) N=26.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 28 | 12 | >40 |
| AWC (inches) | 2.3 | 0.7 | 5.3 |
| PARENT ROCK | serpentine, mafic | | |
| SOIL FAMILY | Weitchpec, Clallam, Skalan | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 12 |
| COARSE FRAGMENT (%) | 36 | 10 | 45 |
| pH | 6.4 | 5.6 | 7.2 |
| COLOR | dark yellowish brown, dark brown, dark reddish brown | | |
| TEXTURE | gl, vgl, gcl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 49 | 40 | 73 |
| pH | 6.7 | 6.2 | 8.0 |
| COLOR | olive brown, dark yellowish brown, dark brown, strong brown | | |
| TEXTURE | gcl, vgl, gsil, xgcl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 3-5 lands (base age 300 years), with site index 75-125. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area range from very low to moderate, stand density index is rated as very low to moderate.

**SOILS:** Soils in this type are moderately-deep to shallow, derived from serpentine and mafic parent material and included in the Weitchpec, Clallam and Skalan soil families. The A horizons range

from very thin to very thick, and are dark yellowish brown, dark brown, dark reddish brown, gravelly, very gravelly, gravelly clay and gravelly silt loams, with moderate to very high pH and generally skeletal coarse fragments and very low to high water holding capacity.

In general this type is low in soil organic matter, as evidenced by the yellow color of the soils. In this type, soil color is dependent on micro-position, those sites in middle 1/3 slope positions tend to have darker A horizons, indicating higher organic matter content, while those in upper 1/3 slope positions are lighter in color indicating lower organic matter content. A horizon pH tends to support this conclusion, higher organic matter content contributes to more acid pH. Stands in middle 1/3 slope positions tend to have lower, more acid pH's than those in upper 1/3 slope positions which tend to have basic pH's.

**VEGETATION:** Total vegetation cover was high (92%) and was characterized by an open tree layer (61% cover), dominated by Douglas-fir, Jeffrey pine, sugar pine and incense cedar. Natural regeneration of sugar pine appears to be very successful in this type. The shrub layer is a distinguishing feature of this type, it is dense (55% cover) and dominated by huckleberry oak. The herb layer is moderate (14% cover), with western modesty, prince's pine, beargrass, rattlesnake plantain, and starflower as the dominant species. The grass layer is sparse to non-existent (1% cover).

Stand replacing wildfires play a key role in maintaining this type, as is evidenced by the range of natural stand age 111-557 years. Upper 1/3 slopes tend to be suseptible to frequent lightning strikes, which due to the dense shrub layer, lead to frequent moderate intensity ground fires. Under dry conditions with the buildup of dead shrub stems these moderate intensity ground fires lead to high intensity stand replacing fires. Examples of this situation were displayed on the Happy Camp Ranger District during the 1987 fire storms. Here, wildfires, particularly those in upper 1/3 slope positions with concave horizontal micro-relief funneled high intensity fire through this type. The result was a stand replacing event with extremely high fire temperatures that burned the organic material within the surface horizons and in some areas left only a rock covered surface. The soil A horizon gives us supporting evidence for similar past events in its light colored A horizons.

Table 9. Vegetation summary for the Douglas-fir/huckleberry oak type (PSME/QUVA) N=26.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 92 | 80 | 100 | 1 |
| GRASS COVER | 1 | 0 | 4 | 1 |
| HERB COVER | 14 | 1 | 25 | 2 |
| SHRUB COVER | 55 | 20 | 90 | 5 |
| TREE COVER | 61 | 30 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 36 | 100 |
| PACIFIC MADRONE (ARME3) | 5 | 46 |
| SUGAR PINE (PILA) | 12 | 88 |
| INCENSE CEDAR (LIDE3) | 6 | 65 |
| TANOAK (LIDE2) | 6 | 38 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 80 |
| TANOAK (LIDE2) | 10 | 57 |
| SUGAR PINE (PILA) | 1 | 50 |
| INCENSE CEDAR (LIDE3) | 1 | 73 |
| CHINQUAPIN (CACH2) | 5 | 30 |
| WHITE FIR (ABCO) | 2 | 38 |
| PACIFIC MADRONE (ARME3) | 1 | 26 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 3 | 61 |
| RED HUCKLEBERRY (VAPA) | 10 | 65 |
| WILD ROSE (ROGY) | 1 | 68 |
| HUCKLEBERRY OAK (QUVA) | 39 | 100 |
| WESTERN SERVICEBERRY (AMAL) | 1 | 29 |
| BOXLEAF SILK TASSEL (GABU2) | 4 | 23 |
| TRAILING BLACKBERRY (RUUR) | 1 | 26 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 6 | 73 |
| PRINCE'S PINE (CHUMO) | 2 | 84 |
| HAWKWEED (HIAL) | 2 | 23 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 34 |
| IRIS (IRI) | 1 | 53 |
| BEARGRASS (XETE) | 6 | 57 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 38 |
| WINTERGREEN (PYPI) | 1 | 34 |
| STARFLOWER (TRLA3) | 2 | 53 |
| VANILLALEAF (ACTR) | 1 | 34 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 26 |
| TWINFLOWER (LIBOL) | 6 | 34 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 30 |
| MOUNTAIN DOGBANE (APPU) | 1 | 23 |
| WOODLAND PHLOX (PHAD2) | 1 | 26 |

**MANAGEMENT:** Management opportunities within this type are limited to low intensity individual tree selection or salvage due to the dense shrub layer, serpentine soils, low productivity, high rock content, and associated regeneration difficulty. The dense shrub layer acts as a contributor to generation success rather than a barrier by modifying the harsh micro-environment. It provides surface shading which allows for reduction in surface temperatures and sufficient retention of soil moisture. Natural regeneration in this type is the preferred alternative, particularly given the success of sugar pine. In areas on the Gasquet Ranger District where clearcut harvesting and moderate to high intensity broadcast burning were used, the sites were converted to rock fields.

050502
Table 10. Environment and timber summary for the Douglas-fir-California bay/poison oak type (PSME-UMCA1/RHDI) N=7.

| RANGER DISTRICT | UKONOM, ORLEANS, GASQUET, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 1490 | 620 | 2450 | 377 |
| MICRO-POSITION | lower 1/3 slope | | | |
| SLOPE (%) | 41 | 20 | 65 | 7 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .493 | .406 | .565 | .018 |
| SURFACE ROCK | 7 | 1 | 13 | 6 |
| STAND AGE | 159 | 67 | 387 | 37 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5952 | 3042 | 9616 | 1935 |
| BASAL AREA ($ft^2$) | 182 | 93 | 307 | 64 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1042 | 0 | 1931 | 563 |
| BASAL AREA ($ft^2$) | 53 | 0 | 93 | 28 |
| SITE CLASS | 2,3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 381 | 311 | 442 | 38 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Orleans, Ukonom, Gasquet, and Lower Trinity Ranger Districts between 620 and 2450 feet in elevation, generally in the lower 1/3 slope and occasionally in the middle 1/3 slope positions. Slopes are gentle to moderate, with undulating horizontal and vertical micro-relief. Sites are generally warm and due to micro-relief, mesic, aspects are southwest facing with very low to moderate surface rock.

Table 11. Soils summary for the Douglas-fir-California bay/poison oak type (PSME-UMCA1/RHDI) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 37 | 28 | >40 |
| AWC (inches) | 3.2 | 1.3 | 4.8 |
| PARENT ROCK | serpentine | | |
| SOIL FAMILY | Fiddletoe, Weitchpec | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 4 | 2 | 7 |
| COARSE FRAGMENT (%) | 33 | 20 | 40 |
| pH | 6.5 | 5.9 | 7.0 |
| COLOR | black, very dark grayish brown | | |
| TEXTURE | gl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 34 | 14 | 58 |
| pH | 6.6 | 6.3 | 7.1 |
| COLOR | dark grayish brown | | |
| TEXTURE | gl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 2-3 lands (base age 300 years), with site index 125-150. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area range from very low to very high, stand density index is rated as low to moderate.

**SOILS:** Soils in this type are moderately-deep and deep, derived from serpentine parent material and included in the Fiddletoe and Weitchpec soil families. The A horizons range from very thin to moderately thick, and are black and dark grayish brown, gravelly, and very gravelly loams, with moderate to very high pH and generally skeletal coarse fragments and low to high water holding capacity.

In general this type is high in soil organic matter and moisture, as evidenced by the dark gray color of the soils. Here soil color is influenced by the dense cover of vegetation, wet sites, and

undulating micro-relief which prevent sunlight from reaching the forest floor. Reducing conditions such as these contribute to the slow breakdown and incorporation of organic material into the soil and contribute to its dark color.

**VEGETATION:** Total vegetation cover was high (90%) and was characterized by a dense two tiered tree layer (78% cover), dominated by Douglas-fir in the top tier and California bay in the second tier. California bay is the primary regeneratiing species. The shrub layer is low to moderately dense (15% cover) and dominated by poison oak and hairy honeysuckle. The herb layer is low (5% cover), with swordfern, milkwort, and starflower as the dominant species. The grass layer is sparse (3% cover) and represented by California fescue. This type is likely to be found in association with drier grassland types which influence its disturbance rate.

High frequency wildfires in the adjacent plant associations contribute to the low mean age of this type (159 years).

**MANAGEMENT:** Management opportunities within this type are limited due to the proximity to water, serpentine soils, moderate productivity, high rock content, regeneration difficulty due to hardwood competition, and high value habitat for neo-tropical birds. Individual tree selection could be used in selected cases where the overstory density would not be reduced to a point where hardwoods would dominate the sites.

Table 12. Vegetation summary for the Douglas-fir-California bay/poison oak type (PSME-UMCA1/RHDI) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 90 | 75 | 98 | 3 |
| GRASS COVER | 3 | 0 | 5 | 1 |
| HERB COVER | 5 | 1 | 20 | 2 |
| SHRUB COVER | 15 | 1 | 55 | 8 |
| TREE COVER | 78 | 15 | 98 | 11 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 57 | 100 |
| PACIFIC MADRONE (ARME3) | 13 | 57 |
| CANYON LIVE OAK (QUCH2) | 4 | 28 |
| CALIFORNIA BAY (UMCA1) | 41 | 100 |
| BLACK OAK (QUKE) | 5 | 28 |
| BIGLEAF MAPLE (ACMA) | 5 | 28 |
| INCENSE CEDAR (LIDE3) | 6 | 28 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 1 | 57 |
| TANOAK (LIDE2) | 3 | 42 |
| CANYON LIVE OAK (QUCH2) | 1 | 57 |
| PACIFIC MADRONE (ARME3) | 1 | 28 |
| CALIFORNIA BAY (UMCA1) | 16 | 100 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 3 | 71 |
| HAZELNUT (COCOC) | 2 | 28 |
| HAIRY HONEYSUCKLE (LOHIV) | 2 | 57 |
| TOYON (HEAR) | 8 | 28 |
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 8 | 28 |
| SWORDFERN (POMU1) | 1 | 71 |
| MILKWORT (POCA1) | 1 | 42 |
| CLIFF-BRAKE (ONDE) | 1 | 28 |
| STARFLOWER (TRLA3) | 1 | 42 |
| CALIFORNIA FESCUE (FECA) | 1 | 42 |
| BROME (BRO) | 1 | 28 |

050503
Table 13. Environment and timber summary for the Douglas-fir/hazelnut type (PSME/COCOC) N=29.

| RANGER DISTRICT | HAPPY CAMP, SALMON RIVER, UKONOM, LOWER TRINITY, ORLEANS, MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2951 | 1460 | 3660 | 129 |
| MICRO-POSITION | upper 1/3-middle 1/3 slope | | | |
| SLOPE (%) | 53 | 20 | 75 | 3 |
| ASPECT | N. WEST<br>N. EAST<br>SOUTH | | | |
| SOLAR RADIATION INDEX * | .440 | .227 | .591 | .028 |
| SURFACE ROCK | 12 | 0 | 38 | 3 |
| STAND AGE | 240 | 49 | 436 | 19 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10240 | 7460 | 13,174 | 690 |
| BASAL AREA ($ft^2$) | 261 | 150 | 373 | 15 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 304 | 0 | 1065 | 94 |
| BASAL AREA ($ft^2$) | 15 | 0 | 67 | 5 |
| SITE CLASS | 1A, 1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 397 | 291 | 448 | 25 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Happy Camp, Salmon River, Ukonom, Orleans, Lower Trinity, and Mad River Ranger Districts between 1460 and 3660 feet in elevation, in the upper 1/3 slope and middle 1/3 slope positions. Slopes are gentle to steep, with concave and linear, horizontal micro-relief and linear and undulating, vertical micro-relief. Sites are generally cool and moist, northwest, northeast, and south facing with topographic shading and very low to high surface rock.

Table 14. Soils summary for the Douglas-fir/hazelnut type (PSME/COCOC) N=29.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 38 | 25 | >40 |
| AWC (inches) | 3.8 | 2.1 | 5.8 |
| PARENT ROCK | mafic, semischist, granite, phyllite, schist | | |
| SOIL FAMILY | Clallam, Holland, Hugo | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 3 | 13 |
| COARSE FRAGMENT (%) | 41 | 10 | 65 |
| pH | 6.4 | 6.0 | 7.1 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, sl, gcl, gsl, xgl, gscl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 42 | 10 | 70 |
| pH | 6.4 | 5.5 | 7.0 |
| COLOR | dark yellowish brown, strong brown, yellow red, very dark grayish brown | | |
| TEXTURE | cl, gl, sl, gsl, vgl, gcl, l | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-1 lands (base age 300 years), with site index 175-200. Softwood cubic volume and basal area are moderate to very high, while hardwood cubic volume and basal area range from very low to high, stand density index is rated as low to moderate.

**SOILS:** Soils in this type are generally deep and occasionally moderately deep, derived from mafic, semischist, granite, phyllite, and schist parent material and included in the Clallam, Holland, and Hugo soil families. The A horizons are generally thick and

range from thin to very thick, and are dark brown, dark yellowish brown and very dark grayish brown, gravelly, sandy, gravelly clay, gravelly sand, extremely gravelly, and gravelly clay loams, with moderate to very high pH and generally skeletal coarse fragments and low to very high water holding capacity.

In general, this type is highly productive due to fine textured, deep soils with high soil organic matter, concave horizontal micro-relief, high available moisture, and cool/moist environments.

**VEGETATION:** Total vegetation cover was high (88%) and was characterized by a dense, multi-tiered, uneven-aged tree layer (78% cover), dominated by Douglas-fir. Douglas-fir is the primary regenerating species. The shrub layer is generally low (7% cover) and dominated by hazelnut, wild rose, and poison oak. The herb layer is moderate (16% cover), with Hooker's fairbells, hawkweed, vanilla leaf, swordfern, brakenfern, rattlesnake plantain, little prince's pine, and starflower as the dominant species. The grass layer is sparse to absent (2% cover) and represented by Pacific brome.

Frequency of wildfires is low due to micro-relief and available water, therefore stands of this type often exceed 400 years stand age and are uneven-aged.

**MANAGEMENT:** Management opportunities within this type are excellent due to the proximity to water, deep soils, high softwood productivity, low hardwood competition, multi-tiered stand structure, and successful natural regeneration of Douglas-fir. Because of the cool/moist environment this type has the capability of supporting large (50"+) old-growth Douglas-fir stands and is therefore particularly well suited to long-rotation, uneven-aged management. The same factors also favor this type as high quality spotted owl habitat.

Table 15. Vegetation summary for the Douglas-fir/hazelnut type (PSME/COCOC) N=29.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 88 | 85 | 98 | 2 |
| GRASS COVER | 2 | 0 | 5 | 1 |
| HERB COVER | 16 | 1 | 37 | 3 |
| SHRUB COVER | 7 | 2 | 24 | 1 |
| TREE COVER | 78 | 60 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 59 | 100 |
| CANYON LIVE OAK (QUCH2) | 6 | 37 |
| TANOAK (LIDE2) | 5 | 31 |
| BIGLEAF MAPLE (ACMA) | 7 | 41 |
| PACIFIC DOGWOOD (CONU2) | 4 | 37 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 5 | 82 |
| TANOAK (LIDE2) | 3 | 41 |
| CANYON LIVE OAK (QUCH2) | 4 | 65 |
| SUGAR PINE (PILA) | 1 | 27 |
| CHINQUAPIN (CACH2) | 2 | 20 |
| WHITE FIR (ABCO) | 1 | 24 |
| PACIFIC DOGWOOD (CONU2) | 2 | 48 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 3 | 51 |
| OREGON-GRAPE (BENE1) | 3 | 44 |
| HAZELNUT (COCOC) | 3 | 100 |
| WILD ROSE (ROGY) | 1 | 65 |
| SNOWBERRY (SYMO) | 1 | 44 |
| ORANGE HONEYSUCKLE (LOCI2) | 1 | 27 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 3 | 20 |
| WESTERN MODESTY (WHMO) | 11 | 48 |
| SWORDFERN (POMU1) | 1 | 62 |
| BRAKENFERN (PTAQL) | 1 | 55 |
| HAWKWEED (HIAL) | 1 | 68 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 55 |
| IRIS (IRI) | 1 | 44 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 58 |
| WINTERGREEN (PYPI) | 1 | 37 |
| STARFLOWER (TRLA3) | 1 | 51 |
| VANILLA LEAF (ACTR) | 5 | 62 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 72 |
| RAYLESS ARNICA (ARDI) | 1 | 24 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 34 |
| SMALL BEDSTRAW (GATR) | 1 | 44 |
| TRAILPLANT (ADBI) | 2 | 41 |
| CALIFORNIA HAREBELL (CAPR6) | 2 | 27 |
| AMERICAN VETCH (VIAM) | 3 | 20 |
| PACIFIC BROME (BRPA) | 1 | 27 |
| WESTERN FESCUE (FEOC) | 3 | 41 |

050504
Table 16. Environment and timber summary for the Douglas-fir-bigleaf maple/swordfern type (PSME-ACMA/POMU1) N=13.

| RANGER DISTRICT | GASQUET, UKONOM, ORLEANS, LOWER TRINITY, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2946 | 1120 | 4320 | 305 |
| MICRO-POSITION | lower 1/3-upper 1/3 slopes | | | |
| SLOPE (%) | 42 | 17 | 75 | 7 |
| ASPECT | S.WEST** EAST | | | |
| SOLAR RADIATION INDEX * | .498 | .433 | .560 | .016 |
| SURFACE ROCK | 18 | 0 | 50 | 7 |
| STAND AGE | 246 | 70 | 404 | 36 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 10987 | 8310 | 122999 | 1238 |
| BASAL AREA ($ft^2$) | 295 | 213 | 360 | 38 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 883 | 0 | 2099 | 403 |
| BASAL AREA ($ft^2$) | 49 | 0 | 93 | 20 |
| SITE CLASS | 1A, 1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 496 | 437 | 509 | 58 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**Southwest aspects in this type are moderated by topographic shading.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Gasquet, Happy Camp, Ukonom, Orleans, Lower Trinity, and Mad River Ranger Districts between 1120 and 4320 feet in elevation, in the lower 1/3 slope through upper 1/3 slope positions. Slopes are gentle to steep, with linear, concave and undulating horizontal

micro-relief and linear and undulating vertical micro-relief. Sites are generally cool and moist, with surface or sub-surface water, west and east facing with topographic shading and very low to high surface rock.

**PRODUCTIVITY:** This plant association is one of the most productive types in the Douglas-fir series. It is found on Dunning site class 1A-1 lands (base age 300 years), with site index 175-200. Softwood cubic volume and basal area are moderate to very high, while hardwood cubic volume and basal area range from very low to high, stand density index is rated as moderate to high.

**SOILS:** Soils in this type are generally deep and occasionally moderately deep, derived from phyllite, schist, sandstone, and mafic parent material and included in the Clallam, and Yorkville soil families. The A horizons are generally thick and are dark brown, and very dark grayish brown, gravelly, and very gravelly loams, with moderate to very high pH and generally skeletal coarse fragments and moderate water holding capacity.

In general, this type is highly productive due to fine textured, deep soils with high soil organic matter, high available moisture, and cool/moist environments.

**VEGETATION:** Total vegetation cover was high (97%) and was characterized by a dense, multi-tiered, uneven-aged tree layer (92% cover), dominated by Douglas-fir in the top tiers and bigleaf maple in the lower tiers. Douglas-fir and bigleaf maple are the primary regenerating species. The shrub layer is moderate (21% cover) and dominated by hazelnut, wild rose, and Oregon-grape. The herb layer is moderate (28% cover), with swordfern, western modesty, Hooker's fairybells, and starflower as the dominant species. The grass layer is sparse to absent (1% cover) and represented by fescue.

Frequency of wildfires is low due to proximity to water, therefore stands of this type often exceed 400 years stand age and are uneven-aged.

**MANAGEMENT:** Management opportunities within this type are excellent due to the proximity to water, deep soils, high softwood productivity, low hardwood competition, multi-tiered stand structure, and successful natural regeneration of Douglas-fir. Because of the cool/moist environment this type has the capability of supporting large (50"+) old-growth Douglas-fir stands and is therefore particularly well suited to long-rotation, uneven-aged management. The same factors also favor this type as high quality spotted owl habitat.

Table 17. Soils summary for the Douglas-fir-bigleaf maple/swordfern type (PSME-ACMA/POMU1) N=13.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 36 | 23 | >40 |
| AWC (inches) | 3.4 | 2.2 | 3.8 |
| PARENT ROCK | phyllite, schist, sandstone, mafic | | |
| SOIL FAMILY | Clallam, Yorkville | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 2 | 13 |
| COARSE FRAGMENT (%) | 35 | 20 | 45 |
| pH | 6.3 | 5.7 | 7.0 |
| COLOR | dark yellowish brown, dark brown, very dark grayish brown, very dark brown | | |
| TEXTURE | gl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 46 | 25 | 65 |
| pH | 5.9 | 5.5 | 6.5 |
| COLOR | dark yellowish brown, dark brown, light olive brown | | |
| TEXTURE | gl, vgl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

Table 18. Vegetation summary for the Douglas-fir-bigleaf maple/swordfern type (PSME-ACMA/POMU1) N=13.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 97 | 95 | 99 | 1 |
| GRASS COVER | 1 | 0 | 5 | 1 |
| HERB COVER | 28 | 10 | 50 | 8 |
| SHRUB COVER | 21 | 19 | 52 | 7 |
| TREE COVER | 92 | 85 | 97 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 65 | 100 |
| PACIFIC MADRONE (ARME3) | 7 | 53 |
| CANYON LIVE OAK (QUCH2) | 8 | 38 |
| TANOAK (LIDE2) | 5 | 30 |
| BIGLEAF MAPLE (ACMA) | 18 | 100 |
| PACIFIC DOGWOOD (CONU2) | 9 | 30 |
| PACIFIC YEW (TABR) | 9 | 30 |
| BLACK OAK (QUKE) | 3 | 23 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 5 | 76 |
| TANOAK (LIDE2) | 5 | 61 |
| CANYON LIVE OAK (QUCH2) | 6 | 61 |
| CALIFORNIA BAY (UMCA1) | 3 | 23 |
| BLACK OAK (QUKE) | 1 | 23 |
| BIGLEAF MAPLE (ACMA) | 3 | 61 |
| PACIFIC YEW (TABR) | 1 | 23 |
| WHITE FIR (ABCO) | 4 | 23 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 38 |
| OREGON-GRAPE (BENE1) | 8 | 61 |
| HAZELNUT (COCOC) | 4 | 76 |
| WILD ROSE (ROGY) | 2 | 61 |
| TRAILING BLACKBERRY (RUUR) | 1 | 53 |
| SNOWBERRY (SYMO) | 1 | 23 |
| EVERGREEN HUCKLEBERRY (VAOV) | 44 | 23 |
| SPREADING SNOWBERRY (SYAC) | 4 | 23 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WESTERN MODESTY (WHMO) | 16 | 61 |
| SWORDFERN (POMU1) | 7 | 84 |
| BRAKENFERN (PTAQL) | 3 | 30 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 30 |
| WINTERGREEN (PYPI) | 1 | 38 |
| STARFLOWER (TRLA3) | 1 | 53 |
| HOOKER'S FAIRYBELL (DIHO2) | 2 | 46 |
| TWINFLOWER (LIBOL) | 2 | 23 |
| TRAILPLANT (ADBI) | 1 | 30 |
| REDWOOD VIOLET (VISE) | 3 | 38 |
| INSIDE-OUT FLOWER (VAPL) | 1 | 23 |
| VETCH (VIC) | 3 | 23 |
| HAWKWEED (HIAL) | 2 | 30 |
| FALSE SOLOMON'S SEAL (SMRAA) | 2 | 23 |
| CALIFORNIA HAREBELL (CAPR6) | 1 | 23 |
| SWEET CICELY (OSCH) | 1 | 23 |
| PHANTOM VIOLET (EBAU) | 1 | 23 |
| BEDSTRAW (GAL) | 1 | 30 |
| FESCUE (FES2) | 1 | 23 |

050505
Table 19. Environment and timber summary for the Douglas-fir/vine maple-dwarf Oregon-grape type (PSME/ACCI-BENE1) N=4.

| RANGER DISTRICT | ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2882 | 2520 | 3150 | 149 |
| MICRO-POSITION | lower 1/3 slope | | | |
| SLOPE (%) | 29 | 5 | 60 | 12 |
| ASPECT | EAST** | | | |
| SOLAR RADIATION INDEX * | .469 | .394 | .508 | .026 |
| SURFACE ROCK | 3 | 1 | 6 | 2 |
| STAND AGE | 320 | 114 | 473 | 77 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 11,034 | 10,229 | 12,053 | 537 |
| BASAL AREA ($ft^2$) | 324 | 320 | 333 | 4 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 0 | 0 | 0 | 0 |
| BASAL AREA ($ft^2$) | 0 | 0 | 0 | 0 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 484 | 449 | 531 | 24 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**East aspects are moderated in this type by topographic shading.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Orleans and Ukonom Ranger Districts between 2520 and 3150 feet in elevation, in the lower 1/3 slope position near water. Slopes are moderate to steep, with undulating horizontal and vertical micro-relief. Sites are generally cool and moist, with surface or sub-surface water, east facing with topographic shading and very low to moderate surface rock.

Table 20. Soils summary for the Douglas-fir/vine maple-dwarf Oregon-grape type (PSME/ACCI-BENE1) N=4.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 40+ | >40 | >40 |
| AWC (inches) | 4.4 | 2.0 | 6.1 |
| PARENT ROCK | variable | | |
| SOIL FAMILY | Bentpeak, Hugo, Holland | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 3 | 8 |
| COARSE FRAGMENT (%) | 41 | 28 | 67 |
| pH | 6.3 | 5.9 | 6.5 |
| COLOR | dark brown, dark grayish brown | | |
| TEXTURE | gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 19 | 60 |
| pH | 6.1 | 5.4 | 6.5 |
| COLOR | brown, strong brown, yellowish brown | | |
| TEXTURE | gl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is one of the most productive types in the Douglas-fir series. It is found on Dunning site class 1A-2 lands (base age 300 years), with site index 150-200. Softwood cubic volume and basal area are high to very high, while hardwood cubic volume and basal area were very low, stand density index is rated as moderate to high.

**SOILS:** Soils in this type were deep, derived from variable parent material and included in the Bentpeak, Hugo, and Holland soil families. The A horizons are generally moderately thick and are dark brown, and very dark grayish brown, gravelly, and extremely gravelly loams, with moderate to high pH and generally skeletal coarse fragments and high water holding capacity.

In general, this type is highly productive due to fine textured, deep soils with high soil organic matter, high available moisture,

and cool/moist environments.

**VEGETATION:** Total vegetation cover was high (98%) and was characterized by a dense, multi-tiered, uneven-aged tree layer (75% cover), dominated by Douglas-fir in the top tiers, chinquapin, Pacific dogwood, and Pacific yew in the lower tiers. Pacific yew, tanoak, and Douglas-fir are the primary regenerating species. The shrub layer is dense (86% cover) and dominated by vine maple, Pacific rhododendron, red huckleberry, and Oregon-grape. The herb layer is sparse (7% cover), with western modesty, prince's pine, rattlesnake plantain, vanilla leaf, swordfern, twinflower, white trillium, and starflower as the dominant species. The grass layer is sparse to absent (1% cover) and represented by fescue.

Frequency of stand replacing wildfires is very low due to proximity to water, therefore stands of this type often exceed 400 years stand age and are uneven-aged.

**MANAGEMENT:** Management opportunities within this type are rated as moderate. While this type has high productivity, high available moisture, deep soils, multi-tiered stand structure, and successful natural regeneration of Douglas-fir, it also is generally included within the streamside management zone, is a successful producer of Pacific yew, and has high cover of competing species such as tanoak, vine maple, and Pacific rhododendron. If the overstory is substantially reduced soil temperatures will increase along with the water temerature input to adjacent streams, successful regeneration of Pacific yew will be elliminated and competition from tanoak will significantly increase. Because of this low intensity management activities are recommended. These include indivdual tree mark with retention of 60% of the overstory basal area. Due to the cool/moist environment this type has the capability of supporting large (50"+) old-growth Douglas-fir stands and is therefore particularly well suited to long-rotation, uneven-aged management. The same factors mentioned previously also favor this type as high quality spotted owl habitat.

Table 21. Vegetation summary for the Douglas-fir/vine maple-dwarf Oregon-grape type (PSME/ACCI-BENE1) N=4.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 98 | 99 | 1 |
| GRASS COVER | 1 | 0 | 2 | 1 |
| HERB COVER | 7 | 5 | 10 | 1 |
| SHRUB COVER | 86 | 80 | 90 | 3 |
| TREE COVER | 75 | 50 | 90 | 9 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 40 | 100 |
| CHINQUAPIN (CACH2) | 3 | 75 |
| TANOAK (LIDE2) | 5 | 25 |
| PACIFIC DOGWOOD (CONU2) | 8 | 75 |
| BIGLEAF MAPLE (ACMA) | 4 | 50 |
| PACIFIC YEW (TABR) | 12 | 75 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 50 |
| TANOAK (LIDE2) | 2 | 75 |
| CANYON LIVE OAK (QUCH2) | 1 | 25 |
| PACIFIC DOGWOOD (CONU2) | 5 | 25 |
| CHINQUAPIN (CACH2) | 7 | 25 |
| PACIFIC YEW (TABR) | 2 | 75 |
| CASCARA (RHPU) | 1 | 25 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 34 | 100 |
| RED HUCKLEBERRY (VAPA) | 4 | 100 |
| WILD ROSE (ROGY) | 1 | 50 |
| TRAILING BLACKBERRY (RUUR) | 1 | 50 |
| SNOWBERRY (SYMO) | 1 | 25 |
| PACIFIC RHODODENDRON (RHMA) | 22 | 100 |
| SALAL (GASH) | 43 | 75 |
| VINE MAPLE (ACCI) | 31 | 100 |
| WESTERN AZELEA (RHOC) | 2 | 25 |

| **HERBS & GRASSES** | | |
|---|---|---|
| WESTERN MODESTY (WHMO) | 3 | 100 |
| PRINCE'S PINE (CHUMO) | 1 | 100 |
| SWORDFERN (POMU1) | 3 | 50 |
| BRAKENFERN (PTAQL) | 1 | 25 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 25 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 75 |
| WINTERGREEN (PYPI) | 1 | 25 |
| STARFLOWER (TRLA3) | 1 | 50 |
| VANILLA LEAF (ACTR) | 2 | 75 |
| TWINFLOWER (LIBOL) | 2 | 50 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 50 |
| SMALL BEDSTRAW (GATR) | 1 | 25 |
| TRAILPLANT (ADBI) | 1 | 25 |
| REDWOOD VIOLET (VISE) | 1 | 25 |
| WHITE TRILLIUM (TROV2) | 1 | 50 |
| BEARDED FESCUE (FESU1) | 1 | 25 |
| SEDGE SPECIES (CAR1) | 1 | 25 |

050508
Table 22. Environment and timber summary for the Douglas-fir/ huckleberry oak-dwarf tanbark type (PSME/QUVA-LIDEE) N=12.

| RANGER DISTRICT | GASQUET, ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3488 | 2490 | 4040 | 151 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 46 | 30 | 65 | 4 |
| ASPECT | S. WEST N. WEST | | | |
| SOLAR RADIATION INDEX * | .423 | .247 | .559 | .031 |
| SURFACE ROCK | 17 | 12 | 26 | 5 |
| STAND AGE | 310 | 87 | 465 | 31 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 4794 | 2590 | 8958 | 774 |
| BASAL AREA ($ft^2$) | 184 | 100 | 267 | 27 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 77 | 0 | 340 | 41 |
| BASAL AREA ($ft^2$) | 3 | 0 | 13 | 2 |
| SITE CLASS | 3,4 | | | |
| SITE INDEX | 100-125 | | | |
| STAND DENSITY INDEX | 266 | 116 | 465 | 36 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Gasquet and Orleans Ranger Districts between 2490 and 4040 feet in elevation, in the upper 1/3 and middle 1/3 slope positions. Slopes are gentle to steep, with linear, horizontal and vertical micro-relief. Sites are generally hot and dry, southwest and northwest facing with very low to high surface rock.

Table 23. Soils summary for the Douglas-fir/huckleberry oak-dwarf tanbark type (PSME/QUVA-LIDEE) N=12.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 23 | 12 | 35 |
| AWC (inches) | 1.9 | 0.6 | 3.2 |
| PARENT ROCK | serpentine | | |
| SOIL FAMILY | Olete, Orleans, Weitchpec | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 5 | 1 | 11 |
| COARSE FRAGMENT (%) | 43 | 10 | 90 |
| pH | 6.1 | 5.5 | 7.0 |
| COLOR | dark yellowish brown, dark brown | | |
| TEXTURE | vgl, gl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 45 | 15 | 85 |
| pH | 6.5 | 6.0 | 7.2 |
| COLOR | dark yellowish brown, strong brown | | |
| TEXTURE | vgl, xgl, gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 3-4 lands (base age 300 years), with site index 100-125. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area were very low to low, stand density index is generally very low.

**SOILS:** Soils in this type were moderately deep and shallow, derived from serpentine parent material and included in the Olete, Orleans, and Weitchpec soil families. The A horizons are generally moderately thick and are dark yellowish brown, and dark brown, very gravelly and extremely gravelly loams, with very low to very high pH and generally skeletal coarse fragments and low water holding capacity.

In general, this type was low in productivity due to soil depth, skeletal coarse fragments, high pH, low soil organic matter, low

available moisture, and hot/dry environments.

**VEGETATION:** Total vegetation cover was high (98%) and was characterized by an open, single-tiered tree layer (50% cover), dominated by Douglas-fir and sugar pine. Douglas-fir and sugar pine were the primary regenerating species. The shrub layer is extremely dense (84% cover) and dominated by huckleberry oak, dwarf tanbark and red huckleberry. The herb layer is moderate (13% cover), with beargrass, prince's pine, and western modesty as the dominant species. The grass layer is sparse (2% cover) and respresented by western fescue.

Frequency of stand replacing wildfires is moderate, due to high concentrations of ladder fuels. Stands occasionally reach 400 years stand age.

**MANAGEMENT:** Management opportunities within this type are limited due to hot/dry sites, serpentine soils, low soil organic matter, high coarse fragments, high pH, and low water holding capacity and high cover of competing species such as huckleberry oak and dwarf tanbark and difficulty in regeneration. Clearcuts accompanied by broadcast burning in this type on the Gasquet Ranger District have created rockfields. Because of this low intensity management activities are recommended. These include indivdual tree mark and salvage, fuels treatment should be limited to piling slash. These sites are well suited to mast and berry production due to the presence of dwarf tanbark and red huckleberry are regularly used by bear, deer, small mammals, and songbirds.

Table 24. Vegetation summary for the Douglas-fir/huckleberry oak-dwarf tanbark type (PSME/QUVA-LIDEE) N=12.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | 1 |
| GRASS COVER | 2 | 0 | 4 | 2 |
| HERB COVER | 13 | 2 | 20 | 4 |
| SHRUB COVER | 84 | 60 | 95 | 3 |
| TREE COVER | 50 | 40 | 75 | 5 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 31 | 100 |
| PACIFIC MADRONE (ARME3) | 4 | 25 |
| SUGAR PINE (PILA) | 17 | 75 |
| WESTERN WHITE PINE (PIMO3) | 11 | 25 |
| INCENSE CEDAR (LIDE3) | 3 | 41 |
| JEFFREY PINE (PIJE) | 6 | 25 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 83 |
| SUGAR PINE (PILA) | 1 | 75 |
| INCENSE CEDAR (LIDE3) | 1 | 25 |
| WHITE FIR (ABCO) | 1 | 23 |
| CALIFORNIA BAY (UMCA1) | 6 | 58 |
| WESTERN WHITE PINE (PIMO3) | 1 | 25 |
| **SHRUBS** | | |
| RED HUCKLEBERRY (VAPA) | 15 | 100 |
| WILD ROSE (ROGY) | 1 | 91 |
| TRAILING BLACKBERRY (RUUR) | 1 | 25 |
| HUCKLEBERRY OAK (QUVA) | 49 | 100 |
| OCEANSPRAY (HODI) | 2 | 25 |
| HAIRY MANZANITA (ARCO) | 4 | 25 |
| PYGMY HOLLYGRAPE (BEPU) | 2 | 66 |
| PINEMAT MANZANITA (ARNE2) | 4 | 25 |
| BOXLEAF SILK TASSEL (GABU2) | 5 | 58 |
| COFFEEBERRY (RHCA1) | 2 | 58 |
| DWARF TANBARK (LIDEE) | 14 | 83 |
| SERVICEBERRY (AMFL) | 6 | 50 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 5 | 83 |
| PRINCE'S PINE (CHUMO) | 3 | 75 |
| SWORDFERN (POMU1) | 4 | 33 |
| IRIS (IRI) | 1 | 58 |
| BEARGRASS (XETE) | 3 | 91 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 58 |
| STARFLOWER (TRLA3) | 1 | 58 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 33 |
| RAYLESS ARNICA (ARDI) | 1 | 25 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 41 |
| TOOTHED PYROLA (PYPID) | 1 | 50 |
| WESTERN FESCUE (FEOC1) | 1 | 41 |
| SERPENTINE TRILLIUM (TRRI) | 1 | 25 |
| BOLANDER'S LILY (LIBO1) | 1 | 50 |
| SISKIYOU BEDSTRAW (GAAMS) | 1 | 25 |

051001
Table 25. Environment and timber summary for the Douglas-fir-alder/vine maple/candy flower type (PAME-ALOR/ACCI/MOSI) N=5.

| RANGER DISTRICT | ORLEANS | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2466 | 2360 | 2570 | 38 |
| MICRO-POSITION | streamside | | | |
| SLOPE (%) | 11 | 0 | 40 | 7 |
| ASPECT | N. WEST<br>S. EAST** | | | |
| SOLAR RADIATION INDEX * | .456 | .370 | .499 | 0.22 |
| SURFACE ROCK | 70 | 60 | 95 | 15 |
| STAND AGE | 102 | 18 | 273 | 60 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | | | | |
| BASAL AREA ($ft^2$) | 17 | 0 | 82 | 16 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | | | | |
| BASAL AREA ($ft^2$) | 46 | 28 | 96 | 13 |
| SITE CLASS | 1 | | | |
| SITE INDEX | 175 | | | |
| STAND DENSITY INDEX | | | | |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**This type is located along streams where topographic shading modifies aspect.

**DISTRIBUTION & ENVIRONMENT:** This association was sampled on the Orleans Ranger District between 2360 and 2570 feet in elevation, in the streamside slope positions. It probably exists on other Districts but has not been sampled there yet. Slopes are level to gentle, with linear, horizontal and vertical micro-relief. Sites were cool and moist, northwest and southeast facing with topographic shading, and very high surface rock.

Table 26. Soils summary for the Douglas-fir-alder/vine maple/candy flower type (PSME-ALOR/ACCI/MOSI) N=5.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | >40 | >40 | >40 |
| AWC (inches) | 1.9 | 9 | 2.9 |
| PARENT ROCK | mixed | | |
| SOIL | Entesols | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 3 | 2 | 4 |
| COARSE FRAGMENT (%) | 49 | 28 | 70 |
| pH | 6.0 | 5.5 | 6.5 |
| COLOR | dark grayish brown, very dark gray | | |
| TEXTURE | gsl, xgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 57 | 30 | 85 |
| pH | 6.2 | 6.0 | 6.5 |
| COLOR | olive brown, dark brown | | |
| TEXTURE | gcl, xksl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1 lands (base age 300 years), with site index 175. Softwood cubic volume and basal area are very low, while hardwood cubic volume and basal area were low to high.

**SOILS:** Soils in this type were generally deep, riverwash, derived from mixed parent material and included in the Entisol soil order. The A horizons were generally very thin, very dark grayish brown, and very dark gray, gravelly sandy and extremely gravelly sandy loams, with moderate to high pH and generally skeletal coarse fragments and low water holding capacity.

In general, this type was low in conifer productivity and high in hardwood productivity due to streamside position, low soil development, and low water holding capacity.

Table 27. Vegetation summary for the Douglas-fir-alder/vine maple/candy flower type (PSME-ALOR/ACCI/MOSI) N=5.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 98 | 95 | 99 | 1 |
| GRASS COVER | 5 | 1 | 15 | 3 |
| HERB COVER | 65 | 15 | 90 | 13 |
| SHRUB COVER | 16 | 5 | 30 | 5 |
| TREE COVER | 93 | 90 | 95 | 1 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 6 | 100 |
| ALDER (ALOR) | 86 | 100 |
| BIGLEAF MAPLE (ACMA) | 7 | 40 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 5 | 100 |
| ALDER (ALOR) | 2 | 40 |
| BIGLEAF MAPLE (ACMA) | 2 | 100 |
| PORT-ORFORD CEDAR (CHLA) | 5 | 20 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 2 | 40 |
| WILD ROSE (ROGY) | 2 | 40 |
| SADLER OAK (QUSA) | 1 | 20 |
| SALAL (GASH) | 2 | 20 |
| VINE MAPLE (ACCI) | 6 | 100 |
| BLACKCAP (RULE) | 2 | 40 |
| THIMBLEBERRY (RUPA2) | 3 | 80 |
| SALMONBERRY (RUSP) | 5 | 80 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| SWORDFERN (POMU1) | 7 | 100 |
| BRAKENFERN (PTAQL) | 2 | 80 |
| MAIDENHAIR FERN (ADPE) | 3 | 40 |
| BABY BLUE EYES (NEPA) | 8 | 60 |
| BLEEDING HEART (DIFO) | 6 | 80 |
| REDWOOD SORREL (OXOR) | 20 | 60 |
| BEDSTRAW (GAL) | 3 | 60 |
| TRAILPLANT (ADBI) | 1 | 20 |
| CANDY FLOWER (MOSI) | 46 | 100 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 60 |
| WILD GINGER (ASCA) | 1 | 20 |
| WHITE TRILLIUM (TROV2) | 1 | 60 |
| BEARDED FESCUE (FES) | 15 | 20 |
| FESCUE (FES) | 2 | 40 |
| SEDGE SPECIES (CAR1) | 4 | 60 |
| SMITH'S FAIRYBELLS (DISM) | 1 | 60 |
| MINT (MESP) | 2 | 60 |
| COLUMBINE (AQFO) | 2 | 40 |
| COLTSFOOT (PEPA) | 2 | 40 |
| FRINGE CUP (TEGR) | 1 | 40 |

**VEGETATION:** Total vegetation cover was high (98%) and was characterized by a dense tree layer (93% cover), dominated by a sparse top tier of Douglas-fir and a dense second tier of alder. Douglas-fir, alder, and bigleaf maple were the primary regenerating species. The shrub layer is moderate (16% cover) and dominated by vine maple, thimbleberry, and salmonberry. The herb layer is dense (65% cover), with candy flower, swordfern, brakenfern, and bleeding heart as the dominant species. The grass layer is sparse (2% cover) and represented by fescue and carex.

The stand replacing events in this type are high intensity floods. Stands are normally subjected to high intensity disturbance (stand replacing events) on a 50 year cycle.

**MANAGEMENT:** Management opportunities within this type are limited due to inner gorge, riparian positions, frequent high intensity disturbance, high surface and soil coarse fragments, low soil development, low water holding capacity, low cover of conifers, and high cover of hardwood species. Because of this management activities within this type should be avoided or restricted to fisheries or wildlife related projects.

051201
Table 28. Environment and timber summary for the Douglas-fir-white oak/grass type (PSME-QUGA2/GRASS) N=10.

| RANGER DISTRICT | LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2810 | 1920 | 3180 | 212 |
| MICRO-POSITION | middle 1/3-lower 1/3 slopes | | | |
| SLOPE (%) | 34 | 30 | 40 | 5 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .497 | .403 | .580 | .024 |
| SURFACE ROCK | 2 | 0 | 10 | 1 |
| STAND AGE | 147 | 67 | 376 | 37 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 3737 | 2186 | 4806 | 750 |
| BASAL AREA ($ft^2$) | 142 | 113 | 227 | 24 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1299 | 0 | 1932 | 248 |
| BASAL AREA ($ft^2$) | 64 | 0 | 93 | 12 |
| SITE CLASS | 1,2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 344 | 307 | 448 | 49 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was sampled on the Lower Trinity Ranger District between 1920 and 3180 feet in elevation, in the middle 1/3 and lower 1/3 slope positions. It probably exists on other Districts but has not been sampled there yet. Slopes are gentle to moderate, with undulating, horizontal and vertical micro-relief. Undulating micro-relief here indicates mass soil movement. Sites were hot and dry, south facing with and very low to moderate surface rock.

Table 29. Soils summary for the Douglas-fir-white oak/grass type (PSME-QUGA2/GRASS) N=10.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 39 | 33 | 40+ |
| AWC (inches) | 4.0 | 2.0 | 5.6 |
| PARENT ROCK | sandstone | | |
| SOIL FAMILY | Bentpeak, Doty | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 9 | 1 | 19 |
| COARSE FRAGMENT (%) | 28 | 14 | 52 |
| pH | 6.7 | 6.0 | 7.0 |
| COLOR | very dark gray, black | | |
| TEXTURE | gl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 36 | 23 | 52 |
| pH | 6.4 | 5.8 | 7.0 |
| COLOR | dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1-2 lands (base age 300 years), with site index 150-175. Softwood cubic volume and basal area are very low, while hardwood cubic volume and basal area were low to high, stand density index is generally low.

**SOILS:** Soils in this type were generally deep, derived from sandstone parent material and included in the Bentpeak and Doty soil families. The A horizons were generally thick, very dark gray and black, loams and gravelly loams, with moderate to high pH and generally low coarse fragments and high water holding capacity.

In general, this type was low in conifer productivity and high in hardwood productivity due to geographic position in the dry southern end of the Lower Trinity Ranger District, where rainfall is limiting. The dark color of the A horizon indicates that these sites were previously dominated by grass.

Table 30. Vegetation summary for the Douglas-fir-white oak/grass type (PSME-QUGA2/GRASS) N= 10.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 90 | 99 | 1 |
| GRASS COVER | 16 | 1 | 55 | 6 |
| HERB COVER | 24 | 2 | 55 | 7 |
| SHRUB COVER | 2 | 1 | 5 | 2 |
| TREE COVER | 75 | 70 | 90 | 8 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 63 | 100 |
| PACIFIC MADRONE (ARME3) | 4 | 30 |
| BLACK OAK (QUKE) | 14 | 40 |
| BIGLEAF MAPLE (ACMA) | 11 | 30 |
| OREGON WHITE OAK (QUGA2) | 11 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 1 | 70 |
| CHINQUAPIN (CACH2) | 2 | 40 |
| OREGON WHITE OAK (QUGA2) | 1 | 50 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 4 | 50 |
| OREGON-GRAPE (BENE1) | 1 | 20 |
| WILD ROSE (ROGY) | 1 | 50 |
| SNOWBERRY (SYMO) | 1 | 30 |
| OCEANSPRAY (HODI) | 2 | 20 |
| DWARF OREGON-GRAPE (BEAQ) | 1 | 30 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 14 | 20 |
| SWORDFERN (POMU1) | 1 | 90 |
| HAWKWEED (HIAL) | 1 | 70 |
| IRIS (IRI) | 2 | 20 |
| SMALL BEDSTRAW (GATR) | 3 | 60 |
| TRAILPLANT (ADBI) | 1 | 40 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 30 |
| SWEET CICELY (OSCH) | 3 | 80 |
| PACIFIC HOUND'S TONGUE (CYGR) | 2 | 70 |
| WILD STRAWBERRY (FRCA1) | 1 | 70 |
| WOODLAND TARWEED (MAMA) | 2 | 70 |
| GAMBLEWEED (SACR2) | 2 | 70 |
| JAPANESE HEDGE PARSLEY (TOJA) | 2 | 50 |
| CALIFORNIA FESCUE (FECA) | 18 | 40 |
| BEARDED FESCUE (FESU1) | 5 | 70 |
| SEDGE SPECIES (CAR1) | 1 | 20 |

**VEGETATION:** Total vegetation cover was high (95%) and was characterized by a moderate tree layer (75% cover), dominated by a top tier of Douglas-fir and a dense second tier of Oregon white oak. Douglas-fir and Oregon white oak were the primary regenerating species. The shrub layer is sparse (2% cover) and dominated by wild rose and poison oak. The herb layer is moderate (24% cover), with swordfern, hawkweed, small bedstraw, sweet cicely, Pacific hounds tongue, wild strawberry, woodland tarweed, and gambleweed as the dominant species. The grass layer is moderate (16% cover) and represented by California and bearded fescue.

The stand replacing wildfires are frequent in this type. Mean stand age of 147 years indicates that wildfire is frequent and of high intensity.

**MANAGEMENT:** Management opportunities within this type are limited due to low conifer volume, high hardwood cover, frequent high intensity disturbance, regeneration difficulties, and grass competition. These sites are best suited to mast production for deer, turkey, and bear and grass production for deer and catle. Because of this management activities within this type should be restricted to wildlife or range related projects. Firewood cutting could be used on selected sites to maintain hardwood densities.

051301
Table 31. Environment and timber summary for the Douglas-fir-black oak type (PSME-QUKE) N=26.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, SALMON RIVER, LOWER TRINITY, MAD RIVER | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2383 | 920 | 4000 | 162 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 44 | 5 | 75 | 4 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | S. EAST .490 | .315 | .596 | .020 |
| SURFACE ROCK | 7 | 0 | 18 | 2 |
| STAND AGE | 222 | 77 | 463 | 22 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7486 | 5278 | 10,988 | 627 |
| BASAL AREA ($ft^2$) | 193 | 107 | 320 | 15 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1304 | 0 | 2639 | 201 |
| BASAL AREA ($ft^2$) | 64 | 0 | 133 | 9 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 418 | 274 | 614 | 25 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This wide spread association was found on the Ukonom, Happy Camp, Salmon River, Lower Trinity, and Mad River Ranger Districts between 920 and 4000 feet in elevation, in the upper 1/3 and middle 1/3 slope positions. Slopes are level to steep, with variable, horizontal and vertical micro-relief. Sites were warm, southeast and southwest facing, with very low to moderate surface rock.

Table 32. Soils summary for the Douglas-fir-black oak type (PSME-QUKE) N=26.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 33 | 10 | >40 |
| AWC (inches) | 3.7 | 2.3 | 6.5 |
| PARENT ROCK | greenstone, mafic granite, schist | | |
| SOIL FAMILY | Hugo, Clallam, Goldridge | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 14 |
| COARSE FRAGMENT (%) | 33 | 5 | 67 |
| pH | 6.5 | 5.1 | 7.2 |
| COLOR | dark brown, dark yellowish brown, dark reddish brown | | |
| TEXTURE | l, gl, vgl, xgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 33 | 10 | 68 |
| pH | 6.3 | 5.4 | 7.0 |
| COLOR | dark brown, strong brown, yellowish red, dark yellowish brown | | |
| TEXTURE | l, gl, vgcl, cl, sicl, gscl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-1 lands (base age 300 years), with site index 175-200. Softwood cubic volume and basal area are low to high, while hardwood cubic volume and basal area were very low to very high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep, derived from greenstone, granite, schist, and mafic parent material and included in the Hugo, Clallam, and Goldridge soil families. The A horizons were generally moderately

thick, dark brown, dark yellowish brown, and dark reddish brown, loams, gravelly through extremmely gravelly loams, with low to very high pH and generally moderate coarse fragments and high water holding capacity.

In general, this type was moderate in conifer productivity and high in hardwood productivity due to south facing aspects, where moisture is limiting. The yellowish and reddish colors of the A horizon indicate that some of these sites are low in organic material while others are highly oxidized.

**VEGETATION:** Total vegetation cover was high (87%) and was characterized by a moderate tree layer (82% cover), dominated by a dense top tier of Douglas-fir and a second tier of black oak, Pacific madrone, and canyon live oak. Douglas-fir, canyon live oak and sugar pine were the primary regenerating species. The shrub layer is sparse (7% cover) and dominated by poison oak. The herb layer is sparse (4% cover), with brakenfern, hawkweed and little prince's pine represented. The grass layer is sparse (3% cover) and represented by California fescue.

The stand replacing wildfires are moderate in this type. Mean stand age of 222 years indicates that wildfire is infrequent, but occassionally of high intensity. Some stands will occassionally achieve ages in excess of 450 years.

**MANAGEMENT:** Management opportunities within this type vary from moderate to high, due to conifer volume, high hardwood cover, low soil organic matter, regeneration difficulties associated with south aspects, and low available moisture. These sites are suited to both intensive timber management and mast production for deer, turkey, and bear. Which activity should be practiced here is dependent on conifer and hardwood cover. On sites with high conifer volume and low hardwood volume, intensive timber management with hardwood retention should be practiced. Shelterwood regeneration harvest and intermediate harvests have the highest chance for regeneration success given the south facing aspects and limited available moisture. On those sites where hardwood volume is high, particularly black oak, wildlife management should be the primary management concern given the high quality wildlife habitat provided by this type.

Table 33. Vegetation summary for the Douglas-fir-black oak type (PSME-QUKE) N=26.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 87 | 80 | 95 | 2 |
| GRASS COVER | 3 | 0 | 10 | 1 |
| HERB COVER | 4 | 0 | 8 | 1 |
| SHRUB COVER | 7 | 0 | 8 | 2 |
| TREE COVER | 82 | 50 | 95 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 49 | 100 |
| PACIFIC MADRONE (ARME3) | 9 | 69 |
| SUGAR PINE (PILA) | 10 | 46 |
| CANYON LIVE OAK (QUCH2) | 8 | 69 |
| TANOAK (LIDE2) | 4 | 30 |
| BLACK OAK (QUKE) | 9 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 6 | 92 |
| TANOAK (LIDE2) | 5 | 53 |
| CANYON LIVE OAK (QUCH2) | 4 | 73 |
| SUGAR PINE (PILA) | 2 | 69 |
| PACIFIC MADRONE (ARME3) | 1 | 26 |
| PACIFIC DOGWOOD (CONU2) | 2 | 23 |
| BLACK OAK (QUKE) | 1 | 34 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 5 | 73 |
| HAZELNUT (COCOC) | 2 | 50 |
| WILD ROSE (ROGY) | 1 | 38 |
| ORANGE HONEYSUCKLE (LOCI2) | 2 | 30 |
| **HERBS & GRASSES** | | |
| SWORDFERN (POMU1) | 1 | 26 |
| BRAKENFERN (PTAQL) | 1 | 42 |
| HAWKWEED (HIAL) | 1 | 38 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 38 |
| IRIS (IRI) | 1 | 30 |
| WINTERGREEN (PYPI) | 1 | 30 |
| STARFLOWER (TRLA3) | 1 | 26 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 23 |
| CALIFORNIA FESCUE (FECA) | 6 | 34 |
| SLENDER-TUBED IRIS (IRCH) | 1 | 30 |
| LEAFLESS PYROLA (PYPIA) | 1 | 23 |

051601
Table 34. Environment and timber summary for the Douglas-fir-incense cedar/California fescue type (PSME-LIDE3/FECA) N=14.

| RANGER DISTRICT | UKONOM, ORLEANS, LOWER TRINITY, HAPPY CAMP, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2646 | 1860 | 3750 | 202 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 42 | 20 | 65 | 5 |
| ASPECT | N. WEST SOUTH | | | |
| SOLAR RADIATION INDEX * | .429 | .336 | .582 | .024 |
| SURFACE ROCK | 8 | 0 | 10 | 5 |
| STAND AGE | 200 | 75 | 429 | 31 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6082 | 4962 | 7557 | 590 |
| BASAL AREA ($ft^2$) | 208 | 147 | 307 | 20 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 775 | 0 | 1486 | 330 |
| BASAL AREA ($ft^2$) | 35 | 0 | 107 | 14 |
| SITE CLASS | 2-3 | | | |
| SITE INDEX | 125-150 | | | |
| STAND DENSITY INDEX | 348 | 221 | 383 | 28 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This wide spread association was found on the Ukonom, Happy Camp, Gasquet, and Lower Trinity Ranger Districts between 1860 and 3750 feet in elevation, in the upper 1/3 and middle 1/3 slope positions. Slopes are gentle to steep, with undulating, concave, and linear, horizontal micro-relief and linear, undulating, vertical micro-relief. Sites were both hot, south facing and cool, northwest facing with very low to moderate surface rock.

Table 35. Soils summary for the Douglas-fir-incense cedar/California fescue type (PSME-LIDE3/FECA) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 30 | 11 | >40 |
| AWC (inches) | 3.1 | 1.3 | 4.4 |
| PARENT ROCK | serpentine | | |
| SOIL FAMILY | Skalan, Weitchpec | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 9 |
| COARSE FRAGMENT (%) | 31 | 20 | 45 |
| pH | 6.7 | 5.7 | 7.8 |
| COLOR | dark brown, dark reddish brown, very dark grayish brown | | |
| TEXTURE | gl, gsil, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 37 | 20 | 49 |
| pH | 7.1 | 6.3 | 8.0 |
| COLOR | dark reddish brown, dark yellowish brown, dark brown | | |
| TEXTURE | vgl, gcl, vgl, gl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 2-3 lands (base age 300 years), with site index 125-150. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area were very low to very high, stand density index is generally low.

**SOILS:** Soils in this type were generally deep, with some moderately deep and shallow, derived from serpentine parent material and included in the Skalan and Weitchpec soil families. The A horizons were generally moderately thick, dark brown, dark reddish brown, and very dark grayish brown, gravelly and very gravelly loams, gravelly silt loams, with moderate to very high pH and generally moderate coarse fragments and moderate water holding capacity.

In general, this type has low conifer productivity and high hardwood productivity, due to serpentine soils, high pH, and south facing aspects, where moisture is limiting. The reddish and grayish colors of the A horizon indicate that some of these sites are highly oxidized, while others have been dominated by grass.

**VEGETATION:** Total vegetation cover was high (94%) and was characterized by an open tree layer (61% cover), dominated by Douglas-fir and incense cedar. Douglas-fir, incense cedar and tanoak were the primary regenerating species. The shrub layer is sparse (8% cover) and dominated by poison oak. The herb layer is moderate (13% cover), with hawkweed, swordfern, western modesty, and iris represented. The dense grass layer (55% cover) is a characteristic of this type, it is dominated by California fescue.

Wildfires are frequent in this type due to the dense grass layer and upper 1/3 slope position. Mean stand age of 200 years indicate that stand replacing wildfire is infrequent, but occassionally of high intensity. Some stands will occassionally achieve ages in excess of 400 years.

**MANAGEMENT:** Management opportunities within this type are limited due to the open character of these stands, dense grass layer, low conifer volume, high hardwood cover, serpentine soils, regeneration difficulties associated with south aspects, and moderate available water holding capacity. Timber management should be limited to individual tree mark on sites with moderate volumes and salvage on low volume sites. These sites are best suited to wildlife management for graizing species such as deer.

Table 36. Vegetation summary for the Douglas-fir-incense cedar/California fescue type (PSME-LIDE3/FECA) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 94 | 85 | 99 | 1 |
| GRASS COVER | 55 | 35 | 80 | 9 |
| HERB COVER | 13 | 2 | 10 | 6 |
| SHRUB COVER | 8 | 1 | 8 | 3 |
| TREE COVER | 61 | 45 | 92 | 8 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 45 | 100 |
| PACIFIC MADRONE (ARME3) | 10 | 64 |
| SUGAR PINE (PILA) | 5 | 28 |
| CANYON LIVE OAK (QUCH2) | 8 | 42 |
| TANOAK (LIDE2) | 2 | 35 |
| INCENSE CEDAR (LIDE3) | 11 | 85 |
| JEFFREY PINE (PIJE) | 14 | 35 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 3 | 100 |
| TANOAK (LIDE2) | 2 | 71 |
| CANYON LIVE OAK (QUCH2) | 2 | 64 |
| SUGAR PINE (PILA) | 2 | 21 |
| PACIFIC MADRONE (ARME3) | 1 | 42 |
| INCENSE CEDAR (LIDE3) | 2 | 85 |
| CALIFORNIA BAY (UMCA1) | 2 | 42 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 50 |
| HUCKLEBERRY OAK (QUVA) | 13 | 21 |
| COFFEEBERRY (RHCA1) | 1 | 21 |
| WHITELEAF MANZANITA (ARVI) | 2 | 21 |
| GREENLEAF MANZANITA (ARPA9) | 3 | 21 |
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 5 | 50 |
| SWORDFERN (POMU1) | 1 | 64 |
| HAWKWEED (HIAL) | 1 | 92 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 28 |
| IRIS (IRI) | 1 | 71 |
| STARFLOWER (TRLA3) | 1 | 21 |
| CALIFORNIA FESCUE (FECA) | 56 | 100 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 28 |
| MOUNTAIN YARROW (ACLA) | 1 | 21 |

051701
Table 37. Environment and timber summary for the Douglas-fir-canyon live oak/rockpile type (PSME-QUCH2/ROCKPILE) N=18.

| RANGER DISTRICT | HAPPY CAMP, UKONOM, GASQUET, ORLEANS, LOWER TRINITY | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3261 | 1940 | 4600 | 202 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 63 | 20 | 90 | 5 |
| ASPECT | S. WEST | | | |
| SOLAR RADIATION INDEX * | .437 | .227 | .596 | .049 |
| SURFACE ROCK | 40 | 10 | 85 | 5 |
| STAND AGE | 235 | 80 | 390 | 32 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5995 | 3898 | 8638 | 933 |
| BASAL AREA ($ft^2$) | 180 | 120 | 267 | 23 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1144 | 0 | 1466 | 377 |
| BASAL AREA ($ft^2$) | 55 | 0 | 67 | 17 |
| SITE CLASS | 3-4 | | | |
| SITE INDEX | 100-125 | | | |
| STAND DENSITY INDEX | 378 | 222 | 472 | 45 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This wide spread association was found on the Gasquet, Ukonom, Happy Camp, Orleans, and Lower Trinity Ranger Districts between 1940 and 4600 feet in elevation, in the upper 1/3 and middle 1/3 slope positions. Slopes are gentle to very steep, with linear, convex, horizontal micro-relief and linear, vertical micro-relief. Sites were hot and dry, southwest facing, moderate to very high surface rock.

Table 38. Soils summary for the Douglas-fir-canyon live oak/ rockpile type (PSME-QUCH2/ROCKPILE) N=18.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 31 | 10 | >40 |
| AWC (inches) | 2.6 | 0.7 | 3.9 |
| PARENT ROCK | semischist, phyllite, schist, greenstone | | |
| SOIL FAMILY | Clallam, Deadwood, Bentpeak | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 8 | 2 | 13 |
| COARSE FRAGMENT (%) | 50 | 20 | 75 |
| pH | 5.9 | 5.2 | 7.0 |
| COLOR | dark brown, very dark grayish brown | | |
| TEXTURE | gl, sl, xgl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 63 | 35 | 90 |
| pH | 5.8 | 5.0 | 6.8 |
| COLOR | dark yellowish brown, yellowish brown, dark brown | | |
| TEXTURE | xgl, vgl, xkl, xksl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 3-4 lands (base age 300 years), with site index 100-125. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area were very low to very high, stand density index is generally low.

**SOILS:** Soils in this type were generally deep and moderately deep, with some shallow, derived from semischist, phyllite, greenstone, and schist parent material and included in the Clallam, Deadwood, and Bentpeak soil families. The A horizons were generally moderately thick, dark brown and very dark grayish brown, sandy loams and gravelly through extremely gravelly loams, with low to very high pH and generally skeletal coarse fragments and moderate water holding capacity. Geomorphic features of this type indicate

that it usually occurs on old landslide scarps where soil development is recent.

In general, this type has low conifer productivity and high hardwood productivity, steep south facing aspects, with high surface and soil coarse fragments, and low available water holding capacity.

**VEGETATION:** Total vegetation cover was high (87%) and was characterized by a dense tree layer (77% cover), dominated by Douglas-fir in the top tier and canyon live oak in the second tier. Canyon live oak and Douglas-fir were the primary regenerating species. The shrub layer is sparse (8% cover) and dominated by poison oak. The herb layer is sparse (6% cover), with prince's pine, swordfern, and western modesty represented. The grass layer is sparse to absent (1% cover).

Wildfires are infrequent in this type due to the high surface cover of rock, steep slopes, and low amount of ladder fuels. Mean stand age of 235 years indicate that stand replacing wildfire is infrequent, but occasionally of high intensity. Some stands will occasionally achieve ages approaching 400 years.

**MANAGEMENT:** Management opportunities within this type are limited due to the harsh character of these hot/dry sites. Limiting factors include steep slopes, high surface rock and the associated problems of seedling survival, low conifer volume, high hardwood cover, and low available water holding capacity. Timber management should be limited to individual tree mark on sites with moderate volumes and salvage on low volume sites. Ground disturbance on these sites should be limited to avoid triggering landslides.

Table 39. Vegetation summary for the Douglas-fir-canyon live oak/rockpile type (PSME-QUCH2/ROCKPILE) N=18.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 87 | 60 | 95 | 3 |
| GRASS COVER | 1 | 0 | 1 | 1 |
| HERB COVER | 6 | 0 | 10 | 2 |
| SHRUB COVER | 8 | 0 | 13 | 4 |
| TREE COVER | 77 | 70 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 32 | 100 |
| PACIFIC MADRONE (ARME3) | 8 | 61 |
| SUGAR PINE (PILA) | 4 | 61 |
| CANYON LIVE OAK (QUCH2) | 28 | 94 |
| TANOAK (LIDE2) | 4 | 55 |
| CHINQUAPIN (CACH2) | 7 | 33 |
| KNOBCONE PINE (PIAT) | 27 | 27 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 3 | 77 |
| TANOAK (LIDE2) | 6 | 66 |
| CANYON LIVE OAK (QUCH2) | 13 | 100 |
| SUGAR PINE (PILA) | 1 | 33 |
| PACIFIC MADRONE (ARME3) | 1 | 22 |
| CHINQUAPIN (CACH2) | 4 | 33 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 2 | 33 |
| OREGON-GRAPE (BENE1) | 2 | 22 |
| WILD ROSE (ROS) | 1 | 22 |
| SNOWBERRY (SYMO) | 1 | 22 |
| OCEANSPRAY (HODI) | 2 | 22 |
| ORANGE HONEYSUCKLE (LOCI2) | 3 | 22 |
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 7 | 44 |
| PRINCE'S PINE (CHUMO) | 2 | 50 |
| SWORDFERN (POMU1) | 1 | 44 |
| HAWKWEED (HIAL) | 1 | 33 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 38 |
| IRIS (IRI) | 1 | 38 |

051702
Table 40. Environment and timber summary for the Douglas-fir-canyon live oak-Pacific madrone/poison oak type (PSME-QUCH2-ARME3/RHDI) N=26.

| RANGER DISTRICT | LOWER TRINITY, UKONOM, HAPPY CAMP | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2722 | 1120 | 4130 | 158 |
| MICRO-POSITION | lower 1/3-upper 1/3 slopes | | | |
| SLOPE (%) | 59 | 30 | 85 | 4 |
| ASPECT | WEST S. WEST | | | |
| SOLAR RADIATION INDEX * | .502 | .374 | .591 | .014 |
| SURFACE ROCK | 21 | 1 | 85 | 6 |
| STAND AGE | 173 | 66 | 361 | 17 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 5936 | 2147 | 8777 | 1436 |
| BASAL AREA ($ft^2$) | 167 | 70 | 253 | 37 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1836 | 551 | 3905 | 422 |
| BASAL AREA ($ft^2$) | 88 | 27 | 180 | 19 |
| SITE CLASS | 1-2 | | | |
| SITE INDEX | 150-175 | | | |
| STAND DENSITY INDEX | 401 | 304 | 484 | 43 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was found on the Ukonom, Happy Camp, and Lower Trinity Ranger Districts between 1120 and 4130 feet in elevation, in the lower 1/3 through upper 1/3 slope positions. Slopes are gentle to very steep, with linear, undulating, convex, horizontal micro-relief and linear, undulating, vertical micro-relief. Sites were hot and dry, west and southwest facing, with very low to very high surface rock.

Table 41. Soils summary for the Douglas-fir-canyon live oak-Pacific madrone/poison oak type (PSME-QUCH2-ARME3/RHDI) N=26.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 33 | 13 | >40 |
| AWC (inches) | 1.8 | 0.4 | 3.1 |
| PARENT ROCK | sandstone, schist, phyllite, greenstone | | |
| SOIL FAMILY | Deadwood, Kistirn, Kindig, Clallam, Abegg, Marpa | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 2 | 20 |
| COARSE FRAGMENT (%) | 56 | 40 | 80 |
| pH | 6.3 | 5.5 | 7.0 |
| COLOR | yellowish brown, dark brown, brown | | |
| TEXTURE | gl, xgl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 59 | 34 | 85 |
| pH | 6.5 | 5.2 | 7.3 |
| COLOR | brown, strong brown, reddish yellow, yellowish brown | | |
| TEXTURE | xgl, gcl, vgcl, gscl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1-2 lands (base age 300 years), with site index 150-175. Softwood cubic volume and basal area are very low to moderate, while hardwood cubic volume and basal area were moderate low to very high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep and moderately deep, with some shallow, derived from sandstone, schist, phyllite, and greenstone parent material and included in the Deadwood, Kistirn, Kindig, Clallam, Abegg, and Marpa soil families. The A horizons were generally thick, dark yellowish brown, dark brown, and brown, gravelly through extremely gravelly loams, with low to very high pH and skeletal coarse fragments and low water holding capacity.

In general, this type has low conifer productivity and high hardwood productivity, on steep south facing aspects, with high surface and soil coarse fragments, and low available water holding capacity.

**VEGETATION:** Total vegetation cover was high (86%) and was characterized by a dense tree layer (84% cover), dominated by Douglas-fir in the top tier, canyon live oak and Pacific madrone in the second tier. Canyon live oak and Douglas-fir were the primary regenerating species. The shrub layer is sparse (9% cover) and dominated by poison oak. The herb layer is sparse (4% cover), with hawkweed, little prince's pine, swordfern, and iris represented. The grass layer is sparse to absent (1% cover).

Wildfires are moderate in this type. Mean stand age of 173 years indicate that stand replacing wildfire is moderate, and occasionally of high intensity. Some stands will occasionally achieve ages approaching 350 years.

**MANAGEMENT:** Management opportunities within this type are limited due to the harsh character of these hot/dry sites. Limiting factors include steep slopes, high surface rock and the associated problems of seedling survival, low conifer volume, high hardwood cover, and low available water holding capacity. Timber management should be limited to individual tree mark on sites with moderate volumes and salvage on low volume sites.

Table 42. Vegetation summary for the Douglas-fir-canyon live oak-Pacific madrone/poison oak type (PSME-QUCH2-ARME3/RHDI) N=26 .

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 86 | 70 | 98 | 3 |
| GRASS COVER | 1 | 0 | 1 | 1 |
| HERB COVER | 4 | 1 | 10 | 1 |
| SHRUB COVER | 9 | 1 | 12 | 2 |
| TREE COVER | 84 | 55 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 33 | 100 |
| PACIFIC MADRONE (ARME3) | 8 | 88 |
| SUGAR PINE (PILA) | 7 | 23 |
| CANYON LIVE OAK (QUCH2) | 43 | 100 |
| TANOAK (LIDE2) | 3 | 23 |
| BLACK OAK (QUKE) | 10 | 23 |
| BIGLEAF MAPLE (ACMA) | 8 | 30 |
| JEFFREY PINE (PIJE) | 10 | 26 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 4 | 88 |
| TANOAK (LIDE2) | 2 | 23 |
| CANYON LIVE OAK (QUCH2) | 8 | 100 |
| PACIFIC MADRONE (ARME3) | 1 | 65 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 7 | 80 |
| HAZELNUT (COCOC) | 4 | 30 |
| HAIRY HONEYSUCKLE (LOHIV) | 1 | 26 |
| **HERBS & GRASSES** | | |
| SWORDFERN (POMU1) | 2 | 29 |
| BRAKENFERN (PTAQL) | 1 | 23 |
| HAWKWEED (HIAL) | 1 | 46 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 38 |
| IRIS (IRI) | 1 | 38 |
| DOGBANE (APPU) | 1 | 23 |
| CALIFORNIA FESCUE (FECA) | 1 | 20 |

051703
Table 43. Environment and timber summary for the Douglas-fir-canyon live oak-tanoak type (PSME-QUCH2-LIDE2) N=22.

| RANGER DISTRICT | UKONOM, HAPPY CAMP, ORLEANS, SALMON RIVER, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 2702 | 1280 | 3940 | 180 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 57 | 29 | 80 | 3 |
| ASPECT | S. WEST SOUTH, EAST | | | |
| SOLAR RADIATION INDEX * | .524 | .457 | .596 | .016 |
| SURFACE ROCK | 6 | 0 | 16 | 1 |
| STAND AGE | 225 | 50 | 404 | 18 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 7776 | 3854 | 11,810 | 730 |
| BASAL AREA ($ft^2$) | 207 | 107 | 300 | 22 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1140 | 0 | 2166 | 203 |
| BASAL AREA ($ft^2$) | 58 | 0 | 120 | 9 |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 419 | 264 | 553 | 28 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was found on the Gasquet, Happy Camp, Ukonom, Orleans, and Salmon River Ranger Districts between 1280 and 3940 feet in elevation, generally in the upper 1/3 slope and occasionally in the middle 1/3 slope positions. Slopes are gentle to steep, with convex, linear, horizontal micro-relief and linear, convex, vertical micro-relief. Sites were hot and dry, southwest and southeast facing, with very low to moderate surface rock.

Table 44. Soils summary for the Douglas-fir-canyon live oak-tanoak type (PSME-QUCH2-LIDE2) n=22.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 33 | 17 | >40 |
| AWC (inches) | 3.4 | 1.7 | 6.8 |
| PARENT ROCK | mafic, phyllite, greenstone, schist | | |
| SOIL FAMILY | Clallam, Goldridge, Deadwood | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 14 |
| COARSE FRAGMENT (%) | 36 | 6 | 76 |
| pH | 6.1 | 5.3 | 6.7 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, l, xgl, vgl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 48 | 10 | 90 |
| pH | 6.3 | 5.0 | 7.1 |
| COLOR | dark yellowish brown, dark brown, yellowish brown, dark reddish brown | | |
| TEXTURE | cl, vgl, xgl, gl, sl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1-3 lands (base age 300 years), with site index 125-175. Softwood cubic volume and basal area are very low to very high, while hardwood cubic volume and basal area were very low to very high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep and shallow, derived from mafic, phyllite, greenstones, and schist parent material and included in the Clallam, Goldridge, and Deadwood soil families. The A horizons were generally moderately thick, dark brown, dark yellowish brown, and very dark grayish brown, gravelly through extremely gravelly

loams, with low to very high pH, skeletal coarse fragments and moderate water holding capacity.

In general, this type has moderate conifer productivity and high hardwood productivity, on steep south facing aspects, with moderate surface and soil coarse fragments, and moderate available water holding capacity.

**VEGETATION:** Total vegetation cover was high (87%) and was characterized by a dense tree layer (82% cover), dominated by Douglas-fir in the top tier, canyon live oak and Pacific madrone in the second tier. Tanoak, canyon live oak and Douglas-fir were the primary regenerating species. The shrub layer is sparse (7% cover) and dominated by poison oak and honeysuckle. The herb layer is sparse (7% cover), with brakenfern, little prince's pine, western modesty, and iris represented. The grass layer is sparse to absent (3% cover).

Wildfires are infrequent in this type. Mean stand age of 225 years indicate that stand replacing wildfires occur infrequently, but occasionally are of high intensity. Some stands will occasionally achieve ages approaching 400 years.

**MANAGEMENT:** Management opportunities within this type are moderate due to the hot/dry sites. Limiting factors include steep, south facing slopes, and there associated problems of seedling survival, skeletal soils, moderate conifer volume, high hardwood cover, and moderate available water holding capacity. Timber management should be limited to intermediate presriptions that maintain ??% of the overstory. Removal of the overstory could convert these sites to hardwood domination.

Table 45. Vegetation summary for the Douglas-fir-canyon live oak-tanoak type (PSME-QUCH2-LIDE2) N=22.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 87 | 70 | 96 | 2 |
| GRASS COVER | 3 | 0 | 6 | 2 |
| HERB COVER | 7 | 3 | 20 | 2 |
| SHRUB COVER | 7 | 0 | 19 | 1 |
| TREE COVER | 82 | 60 | 90 | 2 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| PACIFIC MADRONE (ARME3) | 6 | 81 |
| SUGAR PINE (PILA) | 9 | 59 |
| CANYON LIVE OAK (QUCH2) | 23 | 95 |
| TANOAK (LIDE2) | 5 | 63 |
| BLACK OAK (QUKE) | 4 | 36 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 6 | 90 |
| TANOAK (LIDE2) | 5 | 100 |
| CANYON LIVE OAK (QUCH2) | 10 | 95 |
| SUGAR PINE (PILA) | 2 | 68 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 3 | 63 |
| OREGON-GRAPE (BENE1) | 5 | 27 |
| WILD ROSE (ROGY) | 1 | 22 |
| HONEYSUCKLE (LON) | 1 | 36 |
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 6 | 54 |
| SWORDFERN (POMU1) | 1 | 36 |
| BRAKENFERN (PTAQL) | 1 | 72 |
| HAWKWEED (HIAL) | 1 | 40 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 63 |
| IRIS (IRI) | 1 | 62 |

051901
Table 46. Environment and timber summary for the Douglas-fir-chinquapin-tanoak type (PSME-CACH2-LIDE2) N=24.

| RANGER DISTRICT | UKONOM, ORLEANS, LOWER TRINITY, HAPPY CAMP, SALMON RIVER, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3458 | 2440 | 4120 | 112 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 48 | 10 | 80 | 4 |
| ASPECT | SOUTH | | | |
| SOLAR RADIATION INDEX * | N. WEST .461 | .290 | 590 | .022 |
| SURFACE ROCK | 5 | 0 | 11 | 2 |
| STAND AGE | 259 | 12 | 550 | 28 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9425 | 4492 | 11,270 | 1080 |
| BASAL AREA ($ft^2$) | 244 | 133 | 377 | 27 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 595 | 0 | 2240 | 178 |
| BASAL AREA ($ft^2$) | 36 | 0 | 107 | 9 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 402 | 182 | 676 | 43 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was found on the Gasquet, Happy Camp, Ukonom, Orleans, Salmon River, and Lower Trinity Ranger Districts between 2440 and 4120 feet in elevation, generally in the upper 1/3 slope and occasionally in the middle 1/3 slope positions. Slopes are level to steep, with linear, undulating, horizontal micro-relief and linear, convex, undulating, vertical micro-relief. Sites were cool and moist, northwest and south facing, with very low to moderate surface rock.

Table 47. Soils summary for the Douglas-fir-chinquapin-tanoak type (PSME-CACH2-LIDE2) N =24.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 34 | 12 | >40 |
| AWC (inches) | 3.2 | 1.2 | 6.0 |
| PARENT ROCK | phyllite, schist | | |
| SOIL FAMILY | Clallam, Bentpeak, Deadwood, Hugo | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 2 | 12 |
| COARSE FRAGMENT (%) | 32 | 15 | 50 |
| pH | 5.7 | 5.2 | 6.5 |
| COLOR | dark yellowish brown, dark brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, sl, gsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 35 | 10 | 75 |
| pH | 6.0 | 5.3 | 7.0 |
| COLOR | dark yellowish brown, dark brown, strong brown | | |
| TEXTURE | gl, vgl, gsil, gsl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-2 lands (base age 300 years), with site index 150-200. Softwood cubic volume and basal area are generally high, while hardwood cubic volume and basal area were very low to very high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep and shallow, derived from phyllite and schist parent material and included in the Clallam, Bentpeak, Hugo, and Deadwood soil families. The A horizons were generally moderately thick, dark brown, dark yellowish brown, and very dark grayish brown, sandy and gravelly sandy loams, gravelly and very gravelly loams, with low to very high pH, moderate coarse fragments and moderate water holding capacity.

In general, this type has high conifer productivity and moderate hardwood productivity, on moderate nothwest facing aspects, with low surface and moderate soil coarse fragments and available water holding capacity.

**VEGETATION:** Total vegetation cover was high (91%) and was characterized by a dense tree layer (75% cover), dominated by Douglas-fir in the top tier and chinquapin in the second tier. Douglas-fir, chinquapin, and tanoak were the primary regenerating species. The shrub layer is moderate (19% cover) and dominated by hazelnut, wild rose, and Oregon-grape. The herb layer is moderate (16% cover), with brakenfern, prince's pine, western modesty, rattlesnake plantain, and beargrass represented. The grass layer is sparse to absent (1% cover).

???look at age distribution in this one, are they all very old??? Wildfires are infrequent in this type. Mean stand age of ????259 years indicate that stand replacing wildfires occur infrequently, but occasionally are of high intensity. Some stands will occasionally achieve ages approaching 550 years.

**MANAGEMENT:** Management opportunities within this type are good, due to the cool/moist sites with moderate slopes, low surface rock and moderate soil coarse fragments, high conifer volume and low hardwood volume. Limiting factors include low organic matter on sites with yellowish soils and the potential to increase hardwood competition. Both shelterwood and intermediate prescriptions will work well on this type, as well as uneven-aged management due to successful natural regeneration of Douglas-fir. Both prescriptions should maintain hardwoods due to the high value of chinquapin for wildlife.

Table 48. Vegetation summary for the Douglas-fir-chinquapin-tanoak type (PSME-CACH2-LIDE2) N=24.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 80 | 99 | 1 |
| GRASS COVER | 1 | 0 | 2 | 1 |
| HERB COVER | 16 | 1 | 30 | 4 |
| SHRUB COVER | 19 | 1 | 26 | 4 |
| TREE COVER | 75 | 45 | 95 | 4 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 53 | 100 |
| PACIFIC MADRONE (ARME3) | 7 | 45 |
| SUGAR PINE (PILA) | 10 | 41 |
| TANOAK (LIDE2) | 5 | 45 |
| WHITE FIR (ABCO) | 2 | 29 |
| CHINQUAPIN (CACH2) | 13 | 100 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 3 | 83 |
| TANOAK (LIDE2) | 8 | 75 |
| CANYON LIVE OAK (QUCH2) | 4 | 41 |
| SUGAR PINE (PILA) | 1 | 58 |
| CHINQUAPIN (CACH2) | 8 | 83 |
| INCENSE CEDAR (LIDE3) | 1 | 20 |
| WHITE FIR (ABCO) | 3 | 37 |
| PACIFIC DOGWOOD (CONU2) | 2 | 29 |
| PACIFIC YEW (TABR) | 1 | 29 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 6 | 54 |
| HAZELNUT (COCOC) | 3 | 50 |
| RED HUCKLEBERRY (VAPA) | 4 | 37 |
| WILD ROSE (ROGY) | 1 | 49 |
| TRAILING BLACKBERRY (RUUR) | 5 | 41 |
| SNOWBERRY (SYMO) | 5 | 33 |
| HUCKLEBERRY OAK (QUVA) | 8 | 20 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 3 | 50 |
| PRINCE'S PINE (CHUMO) | 8 | 79 |
| SWORDFERN (POMU1) | 1 | 20 |
| BRAKENFERN (PTAQL) | 1 | 70 |
| HAWKWEED (HIAL) | 1 | 29 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 37 |
| IRIS (IRI) | 1 | 33 |
| BEARGRASS (XETE) | 4 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 62 |
| WINTERGREEN (PYPI) | 1 | 45 |
| VANILLA LEAF (ACTR) | 5 | 45 |
| HOOKER'S FAIRYBELL (DIHO2) | 1 | 29 |
| TWINFLOWER (LIBOL) | 5 | 37 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 2 | 25 |
| REDWOOD VIOLET (VISE) | 1 | 29 |
| TOOTHED PYROLA (PYPID) | 1 | 20 |
| DOGBANE (APPU) | 1 | 20 |

051902
Table 49. Environment and timber summary for the Douglas-fir-chinquapin/beargrass type (PSME-CACH2/XETE) N=7.

| RANGER DISTRICT | ORLEANS, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3662 | 3500 | 3880 | 53 |
| MICRO-POSITION | upper 1/3-ridgetop | | | |
| SLOPE (%) | 25 | 10 | 42 | 5 |
| ASPECT | EAST | | | |
| SOLAR RADIATION INDEX * | .530 | .489 | .569 | .012 |
| SURFACE ROCK | 6 | 0 | 11 | 6 |
| STAND AGE | 247 | 65 | 508 | 63 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6909 | 4890 | 9569 | 884 |
| BASAL AREA ($ft^2$) | 180 | 140 | 227 | 15 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1415 | 0 | 2500 | 405 |
| BASAL AREA ($ft^2$) | 97 | 0 | 147 | 25 |
| SITE CLASS | 1A-1 | | | |
| SITE INDEX | 175-200 | | | |
| STAND DENSITY INDEX | 441 | 237 | 528 | 54 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was found on the Ukonom and Orleans Ranger Districts between 3500 and 3880 feet in elevation, generally in the upper 1/3 slope and ridgetop positions. Slopes are level to gentle, with linear, undulating, horizontal micro-relief and linear, undulating, vertical micro-relief, where snow and water accumulate. Sites were cool and moist, east facing, with very low to moderate surface rock.

Table 50. Soils summary for the Douglas-fir-chinquapin/beargrass type (PSME-CACH2/XETE) N=7.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic | | |
| DEPTH ** (inches) | 35 | 23 | >40 |
| AWC (inches) | 3.6 | 2.5 | 6.9 |
| PARENT ROCK | schist, phyllite | | |
| SOIL FAMILY | Holland, Hurlbut, Inville | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 10 | 1 | 17 |
| COARSE FRAGMENT (%) | 19 | 10 | 29 |
| pH | 6.1 | 5.5 | 6.5 |
| COLOR | dark brown, dark yellowish brown | | |
| TEXTURE | l, gl, gsil | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 28 | 10 | 35 |
| pH | 5.8 | 5.5 | 6.5 |
| COLOR | olive brown | | |
| TEXTURE | sil, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-1 lands (base age 300 years), with site index 175-200. Softwood cubic volume and basal area are generally moderate, however, sites on ridgetops can support very high growth. On the Orleans Ranger District stands have been sampled that support trees > 40" dbh and 100 years old. Hardwood cubic volume and basal area were generally high, stand density index is generally moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep, derived from phyllite and schist parent material and included in the Holland, Hurlbut, and Inville soil families. The A horizons were generally thick, dark brown, and dark yellowish brown, loams, gravelly and gravelly silt loams, with moderate to high pH, low coarse fragments and high water holding capacity.

In general, this type has moderate conifer productivity and high hardwood productivity, on cool/moist east facing aspects, with low surface and moderate soil coarse fragments and available water

holding capacity.

**VEGETATION:** Total vegetation cover was high (95%) and was characterized by a dense tree layer (85% cover), dominated by Douglas-fir in the top tier, chinquapin and Pacific madrone in the second tier. Douglas-fir, chinquapin, and tanoak were the primary regenerating species. The shrub layer is sparse (6% cover) and represented by sadler oak, trailing blackberry, and Oregon-grape. The dense herb layer (44% cover) is characteristic of this type. It is dominated by beargrass with low cover of brakenfern. The grass layer is absent (0% cover).

Wildfires are infrequent in this type. Mean stand age of 247 years indicate that stand replacing wildfires occur infrequently, but occasionally are of high intensity. Some stands will occasionally achieve ages approaching 500 years.

**MANAGEMENT:** Management opportunities within this type are good, due to the cool/moist sites with gentle slopes, low surface rock and soil coarse fragments, moderate conifer volume and high hardwood volume. Limiting factors include low organic matter on sites with yellowish soils and the potential to increase hardwood competition. Both shelterwood and intermediate prescriptions will work well on this type, as well as uneven-aged management due to successful natural regeneration of Douglas-fir. Which method to use should be dependent on slope position, those sites on ridgetops positions tend to have higher growth rates and are better candidates for intensive management than those on upper 1/3 slopes. Both prescriptions should maintain hardwoods due to the high value of chinquapin for wildlife. This type was identified as containing occupied marbled murrelet habitat, possibly due to the large trees and close proximity to the ocean.

Table 51. Vegetation summary for the Douglas-fir-chinquapin/ beargrass type (PSME-CACH2/XETE) N=7.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 95 | 90 | 98 | 2 |
| GRASS COVER | 0 | 0 | 0 | 0 |
| HERB COVER | 44 | 30 | 80 | 12 |
| SHRUB COVER | 6 | 1 | 15 | 2 |
| TREE COVER | 85 | 85 | 97 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 45 | 100 |
| PACIFIC MADRONE (ARME3) | 7 | 85 |
| SUGAR PINE (PILA) | 12 | 28 |
| PACIFIC DOGWOOD (CONU2) | 2 | 28 |
| CHINQUAPIN (CACH2) | 46 | 100 |
| TANOAK (LIDE2) | 5 | 28 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 2 | 100 |
| TANOAK (LIDE2) | 3 | 85 |
| SUGAR PINE (PILA) | 1 | 28 |
| CHINQUAPIN (CACH2) | 2 | 85 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 2 | 42 |
| RED HUCKLEBERRY (VAPA) | 2 | 28 |
| TRAILING BLACKBERRY (RUUR) | 1 | 42 |
| SNOWBERRY (SYMO) | 1 | 28 |
| SADLER OAK (QUSA) | 4 | 57 |
| SALAL (GASH) | 6 | 28 |
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 1 | 57 |
| BRAKENFERN (PTAQL) | 2 | 85 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 42 |
| BEARGRASS (XETE) | 47 | 85 |
| WINTERGREEN (PYPI) | 1 | 28 |

051906
Table 52. Environment and timber summary for the Douglas-fir/ rhododendron-dwarf Oregon-grape type (PSME-CACH2/RHMA-BENE1) N=14.

| RANGER DISTRICT | ORLEANS, GASQUET, UKONOM | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3200 | 2500 | 3600 | 109 |
| MICRO-POSITION | lower 1/3-upper 1/3 slopes | | | |
| SLOPE (%) | 48 | 22 | 65 | 5 |
| ASPECT | N. WEST N. EAST** | | | |
| SOLAR RADIATION INDEX * | .349 | .260 | .448 | .021 |
| SURFACE ROCK | 6 | 0 | 21 | 3 |
| STAND AGE | 247 | 115 | 400 | 26 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 8167 | 5057 | 9474 | 600 |
| BASAL AREA ($ft^2$) | 232 | 150 | 280 | 18 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 495 | 0 | 748 | 265 |
| BASAL AREA ($ft^2$) | 26 | 0 | 50 | 12 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 368 | 316 | 469 | 21 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.
**Northeast aspects are moderated by topographic shading.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Gasquet, Orleans and Ukonom Ranger Districts between 2500 and 3600 feet in elevation, in the lower 1/3 through upper 1/3 slope position. Slopes are gentle to steep, with linear, convex, horizontal micro-relief and linear,vertical micro-relief. Sites are generally cool and moist, northwest and northeast facing with topographic shading and very low to moderate surface rock.

Table 53. Soils summary for the Douglas-fir/rhododendron-dwarf Oregon-grape type (PSME-CACH2/RHMA-BENE1) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Frigid | | |
| DEPTH ** (inches) | 32 | 21 | >40 |
| AWC (inches) | 3.0 | 1.1 | 5.5 |
| PARENT ROCK | phyllite, schist, mafic, greenstone | | |
| SOIL FAMILY | Clallam, Bentpeak, Goldridge | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 7 | 2 | 15 |
| COARSE FRAGMENT (%) | 40 | 10 | 80 |
| pH | 5.7 | 5.0 | 6.3 |
| COLOR | dark brown, very dark grayish brown | | |
| TEXTURE | gl, xgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 51 | 15 | 82 |
| pH | 6.0 | 5.5 | 7.0 |
| COLOR | yellow brown, dark yellowish brown, strong brown | | |
| TEXTURE | gl, vgl, xgl, vgcl | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-2 lands (base age 300 years), with site index 150-200. Softwood cubic volume and basal area are low to high, while hardwood cubic volume and basal area were very low to moderate, stand density index is rated as low to moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep, derived from phyllite, schist, mafic, and greenstone parent material and included in the Clallam, Bentpeak, and Goldridge soil families. The A horizons are generally moderately thick and are dark brown, and very dark grayish brown, gravelly, and extremely gravelly loams, with low to high pH and generally skeletal coarse fragments and moderate water holding capacity.

In general, this type is moderately productive due to fine textured, deep soils with high soil organic matter, moderate available moisture, and cool/moist environments.

**VEGETATION:** Total vegetation cover was high (96%) and was characterized by a dense, multi-tiered, uneven-aged tree layer (75% cover), dominated by Douglas-fir in the top tiers, and chinquapin in the lower tiers. Tanoak is the primary regenerating species. The shrub layer is dense (66% cover) and dominated by Pacific rhododendron, salal, red huckleberry, and poison oak. The herb layer is sparse (10% cover), with western modesty, prince's pine, rattlesnake plantain, vanilla leaf, swordfern, twinflower, redwood violet, and beargrass as the dominant species. The grass layer is sparse to absent (1% cover).

Frequency of stand replacing wildfires is moderate, due to high concentrations of ladder fuels. Stands rarely reach 400 years stand age.

**MANAGEMENT:** Management opportunities within this type are rated as moderate due to high cover of competing species such as tanoak, and Pacific rhododendron and difficulty in regeneration due to cold micro-environment and skeletal soils. If the overstory is substantially reduced soil temperatures will increase along with competition from tanoak and Pacific rhododendron. Because of this low intensity management activities are recommended. These include indivdual tree mark with retention of 60% of the overstory basal area and ?? of the hardwoods. These sites are particularly well suited to mast production due to the presence of chinquapin.

Table 54. Vegetation summary for the Douglas-fir/rhododendron-dwarf Oregon-grape type (PSME-CACH2/RHMA-BENE1) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 85 | 99 | 1 |
| GRASS COVER | 1 | 0 | 1 | 1 |
| HERB COVER | 10 | 3 | 10 | 2 |
| SHRUB COVER | 66 | 50 | 95 | 8 |
| TREE COVER | 75 | 60 | 97 | 6 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 62 | 100 |
| SUGAR PINE (PILA) | 6 | 42 |
| CHINQUAPIN (CACH2) | 11 | 100 |
| TANOAK (LIDE2) | 5 | 57 |
| PORT-ORFORD CEDAR (CHLA) | 3 | 28 |
| PACIFIC MADRONE (ARME3) | 6 | 21 |
| BIGLEAF MAPLE (ACMA) | 7 | 21 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 1 | 64 |
| TANOAK (LIDE2) | 10 | 100 |
| CANYON LIVE OAK (QUCH2) | 1 | 35 |
| SUGAR PINE (PILA) | 1 | 28 |
| CHINQUAPIN (CACH2) | 3 | 42 |
| WHITE FIR (ABCO) | 1 | 28 |
| PACIFIC YEW (TABR) | 1 | 21 |
| PORT-ORFORD CEDAR (CHLA) | 1 | 21 |
| **SHRUBS** | | |
| POISON OAK (RHDI) | 7 | 100 |
| RED HUCKLEBERRY (VAPA) | 3 | 64 |
| WILD ROSE (ROGY) | 1 | 49 |
| TRAILING BLACKBERRY (RUUR) | 1 | 28 |
| PACIFIC RHODODENDRON (RHMA) | 34 | 100 |
| SALAL (GASH) | 56 | 64 |
| SLENDER SALAL (GAOV) | 2 | 21 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| WESTERN MODESTY (WHMO) | 1 | 57 |
| PRINCE'S PINE (CHUMO) | 3 | 57 |
| SWORDFERN (POMU1) | 2 | 50 |
| BRAKENFERN (PTAQL) | 1 | 35 |
| IRIS (IRI) | 1 | 21 |
| BEARGRASS (XETE) | 5 | 64 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 71 |
| WINTERGREEN (PYPI) | 1 | 35 |
| VANILLALEAF (ACTR) | 1 | 50 |
| TWINFLOWER (LIBOL) | 3 | 50 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 4 | 28 |
| REDWOOD VIOLET (VISE) | 2 | 64 |
| WHITE TRILLIUM (TROV2) | 1 | 21 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 28 |
| HAWKWEED (HIAL) | 1 | 21 |
| STARFLOWER (TRLA) | 1 | 21 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 21 |

051907
Table 55. Environment and timber summary for the Douglas-fir-chinquapin/rhododendron-sadler oak/beargrass type (PSME-CACH2/RHMA-QUSA/XETE) N=57.

| RANGER DISTRICT | ORLEANS, UKONOM, GASQUET | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3696 | 2880 | 4560 | 55 |
| MICRO-POSITION | upper 1/3-middle 1/3 slopes | | | |
| SLOPE (%) | 40 | 15 | 75 | 2 |
| ASPECT | N. WEST N. EAST | | | |
| SOLAR RADIATION INDEX * | .422 | .239 | .519 | .018 |
| SURFACE ROCK | 12 | 0 | 40 | 2 |
| STAND AGE | 240 | 5 | 500 | 17 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 6035 | 2540 | 10,290 | 431 |
| BASAL AREA ($ft^2$) | 186 | 0 | 320 | 11 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 266 | 0 | 968 | 95 |
| BASAL AREA ($ft^2$) | 20 | 0 | 90 | 6 |
| SITE CLASS | 1-3 | | | |
| SITE INDEX | 125-175 | | | |
| STAND DENSITY INDEX | 309 | 104 | 407 | 16 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association is found on the Gasquet, Orleans and Ukonom Ranger Districts between 2880 and 4560 feet in elevation, in the upper 1/3 and middle 1/3 slope positions. Slopes are gentle to steep, with linear, convex, horizontal and vertical micro-relief. Sites are generally cool and moist, northwest and northeast facing with topographic shading and very low to high surface rock.

Table 56. Soils summary for the Douglas-fir-chinquapin/ rhododendron-sadler oak/beargrass type (PSME-CACH2/RHMA-QUSA/XETE) N=57.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Frigid | | |
| DEPTH ** (inches) | 36 | 12 | >40 |
| AWC (inches) | 3.2 | 1.3 | 6.3 |
| PARENT ROCK | schist, phyllite | | |
| SOIL FAMILY | Bentpeak, Kindig, Doerock, Deadwood | | |
| A HORIZON: | | | |
| THICKNESS (inches) | 6 | 1 | 16 |
| COARSE FRAGMENT (%) | 25 | 5 | 65 |
| pH | 5.6 | 4.5 | 7.0 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, l | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 50 | 18 | 80 |
| pH | 5.9 | 5.0 | 6.8 |
| COLOR | yellowish brown, light yellowish brown, strong brown, yellowish red, brown, light olive brown | | |
| TEXTURE | gl, vgl, xgl, xkl, gsil | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1-3 lands (base age 300 years), with site index 125-175. Softwood cubic volume and basal area are very low to high, while hardwood cubic volume and basal area were very low to high, stand density index is rated as very low to moderate.

**SOILS:** Soils in this type were generally deep, with some moderately deep and shallow, derived from schist and phyllite parent material and included in the Bentpeak, Kindig, Doerock, and

Deadwood soil families. The A horizons are generally moderately thick and are dark brown, dark yellowish brown, and very dark grayish brown, gravelly, and very gravelly loams, with very low to high pH and generally low coarse fragments and moderate water holding capacity.

In general, this type is low to moderately productive due to fine textured, deep soils with high soil organic matter, moderate available moisture, and cool/moist environments.

**VEGETATION:** Total vegetation cover was high (96%) and was characterized by a dense, multi-tiered, uneven-aged tree layer (68% cover), dominated by Douglas-fir and sugar pine in the top tiers, and chinquapin in the lower tiers. Douglas-fir and chinquapin are the primary regenerating species. The shrub layer is dense (62% cover) and dominated by Pacific rhododendron, sadler oak, and red huckleberry. The herb layer is moderate (17% cover), with beargrass and prince's pine as the dominant species. The grass layer is sparse to absent (1% cover).

Frequency of stand replacing wildfires is moderate, due to high concentrations of ladder fuels. Stands rarely reach 400 years stand age.

**MANAGEMENT:** Management opportunities within this type are rated as moderate due to high cover of competing species such as Pacific rhododendron and sadler oak, and difficulty in regeneration due to cold micro-environment where frost heaving may occur. Clearcuts on the Orleans Ranger District have created brushfields dominated by Pacific rhododendron an sadler oak. Because of this low intensity management activities are recommended. These include indivdual tree mark with retention of ??% of the overstory basal area and ?? of the hardwoods. These sites are particularly well suited to mast production due to the presence of chinquapin and are regularly used by bear, deer, and songbirds.

Table 57. Vegetation summary for the Douglas-fir-chinquapin/ rhododendron-sadler oak/beargrass type (PSME-CACH2/RHMA-QUSA/XETE) N=57.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 96 | 80 | 99 | 1 |
| GRASS COVER | 1 | 0 | 1 | 5 |
| HERB COVER | 17 | 1 | 34 | 3 |
| SHRUB COVER | 62 | 13 | 95 | 4 |
| TREE COVER | 68 | 35 | 97 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| DOUGLAS-FIR (PSME) | 46 | 100 |
| SUGAR PINE (PILA) | 13 | 66 |
| CHINQUAPIN (CACH2) | 19 | 91 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| DOUGLAS-FIR (PSME) | 3 | 96 |
| SUGAR PINE (PILA) | 2 | 45 |
| CHINQUAPIN (CACH2) | 4 | 77 |
| TANOAK (LIDE2) | 4 | 35 |
| CANYON LIVE OAK (QUCH2) | 1 | 26 |
| WHITE FIR (ABCO) | 1 | 29 |
| **SHRUBS** | | |
| OREGON-GRAPE (BENE1) | 4 | 50 |
| RED HUCKLEBERRY (VAPA) | 5 | 70 |
| TRAILING BLACKBERRY (RUUR) | 1 | 28 |
| PACIFIC RHODODENDRON (RHMA) | 35 | 100 |
| SADLER OAK (QUSA) | 14 | 100 |
| SALAL (GASH) | 36 | 45 |
| PINEMAT MANZANITA (ARNE2) | 4 | 28 |
| SLENDER SALAL (GAOV) | 3 | 49 |
| WILD ROSE (ROS) | 1 | 25 |
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 2 | 59 |
| BRAKENFERN (PTAQL) | 4 | 33 |
| LITTLE PRINCE'S PINE (CHME2) | 1 | 42 |
| BEARGRASS (XETE) | 16 | 100 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 28 |
| WINTERGREEN (PYPI) | 1 | 31 |

051908
Table 58. Environment and timber summary for the Douglas-fir-chinquapin-tanoak/Oregon-grape type (PSME-CACH2-LIDE2/BENE1) N=14.

| RANGER DISTRICT | HAPPY CAMP, UKONOM, HAYFORK | | | |
|---|---|---|---|---|
| **VARIABLE** | **MEAN** | **MINIMUM** | **MAXIMUM** | **STANDARD ERROR** |
| **ENVIRONMENT:** | | | | |
| ELEVATION (ft) | 3323 | 3150 | 4060 | 131 |
| MICRO-POSITION | lower 1/3-upper 1/3 slopes | | | |
| SLOPE (%) | 35 | 18 | 57 | 3 |
| ASPECT | N. WEST EAST | | | |
| SOLAR RADIATION INDEX * | .454 | .354 | .500 | .080 |
| SURFACE ROCK | 5 | 0 | 6 | 3 |
| STAND AGE | 308 | 165 | 512 | 32 |
| **TIMBER:** | | | | |
| **SOFTWOOD** | | | | |
| VOLUME ($ft^3$) | 9424 | 5536 | 13086 | 800 |
| BASAL AREA ($ft^2$) | 240 | 140 | 267 | 20 |
| **HARDWOOD** | | | | |
| VOLUME ($ft^3$) | 1450 | 0 | 2848 | 361 |
| BASAL AREA ($ft^2$) | 88 | 0 | 220 | 18 |
| SITE CLASS | 1A-2 | | | |
| SITE INDEX | 150-200 | | | |
| STAND DENSITY INDEX | 514 | 308 | 617 | 48 |

* Ratio of total annual radiation on a given aspect and slope to total annual radiation received on a flat surface for a given latitude.

**DISTRIBUTION & ENVIRONMENT:** This association was found on the Happy Camp, Ukonom and Hayfork Ranger Districts between 3150 and 4060 feet in elevation, lower 1/3 through upper 1/3 slope positions. Slopes are gentle to moderate, with undulating, convex, horizontal micro-relief and convex, undulating, vertical micro-relief. Sites were cool and moist, east and nothwest facing, with low surface rock.

Table 59. Soils summary for the Douglas-fir-chinquapin-tanoak/Oregon-grape type (PSME-CACH2-LIDE2/BENE1) N=14.

| SOILS VARIABLES | MEAN | MINIMUM | MAXIMUM |
|---|---|---|---|
| TEMPERATURE REGIME | Mesic/Frigid | | |
| DEPTH ** (inches) | >40 | >40 | >40 |
| AWC (inches) | 4.4 | 2.0 | 5.9 |
| PARENT ROCK | mafic, greenstone, granite | | |
| SOIL FAMILY | Clallam, Goldridge | | |
| HORIZON: | | | |
| THICKNESS (inches) | 9 | 1 | 10 |
| COARSE FRAGMENT (%) | 36 | 12 | 55 |
| pH | 6.1 | 5.7 | 6.6 |
| COLOR | dark brown, dark yellowish brown, very dark grayish brown | | |
| TEXTURE | gl, vgl, gcl, vgsl | | |
| SUB-SURFACE HORIZON: | | | |
| COARSE FRAGMENT (%) | 29 | 15 | 50 |
| pH | 6.3 | 5.8 | 7.2 |
| COLOR | dark yellowish brown, strong brown, dark brown | | |
| TEXTURE | gl, gc | | |

** Maximum depth examined during the reconnaisance sampling phase was 40 inches.

**PRODUCTIVITY:** This plant association is found on Dunning site class 1A-2 lands (base age 300 years), with site index 175-200. Softwood cubic volume and basal area are generally high, hardwood cubic volume and basal area were generally very high, stand density index is generally high.

**SOILS:** Soils in this type were deep, derived from mafic, greenstone, and granite parent material and included in the Clallam and Goldridge soil families. The A horizons were generally thick, dark brown, dark yellowish brown, and very dark grayish brown, gravelly and very gravelly loams, gravelly clay and very gravelly sandy loams, with moderate to high pH, very low to high coarse fragments and high water holding capacity.

In general, this type has high conifer productivity and very high

hardwood productivity, on cool/moist northwest and east facing aspects, with low surface and moderate soil coarse fragments and high available water holding capacity.

**VEGETATION:** Total vegetation cover was high (91%) and was characterized by a dense tree layer (84% cover), dominated by Douglas-fir in the top tier, chinquapin and white fir in the second tier. Douglas-fir, chinquapin, white fir, and tanoak were the primary regenerating species. The shrub layer is moderate (13% cover) and represented by red huckleberry, wild rose, and Oregon-grape. The herb layer was moderate (18% cover) it is represented by prince's pine, white-veined pyrola, vanilla leaf, Hooker's fairybells, western modesty, and twinflower. The grass layer is sparse to absent (1% cover).

Wildfires are infrequent in this type. Mean stand age of 308 years indicate that stand replacing wildfires occur infrequently, but occasionally are of high intensity. Some stands will occasionally achieve ages approaching 500 years.

**MANAGEMENT:** Management opportunities within this type are good, due to the cool/moist sites with gentle slopes, deep soils, low surface rock and moderate soil coarse fragments, high conifer volume and high hardwood volume. Limiting factors include low organic matter on sites with yellowish soils and the potential to increase hardwood competition and white fir cover on high elevation sites. Both shelterwood and intermediate prescriptions will work well on this type, as well as uneven-aged management due to successful natural regeneration of Douglas-fir. Which method to use should be dependent on slope position and elevation. Methods that have the potential for decreasing soil temperature on higher elevation sites should be avoided, as they may result in shifting conifer dominance to white fir. Both prescriptions should maintain hardwoods due to the high value of chinquapin for wildlife.

Table 60. Vegetation summary for the Douglas-fir-chinquapin-tanoak/Oregon-grape type (PSME-CACH2-LIDE2/BENE1) N=14.

| VEGETATION LAYER | MEAN | MINIMUM | MAXIMUM | STANDARD ERROR |
|---|---|---|---|---|
| TOTAL COVER | 91 | 85 | 98 | 2 |
| GRASS COVER | 1 | 0 | 2 | 1 |
| HERB COVER | 18 | 3 | 30 | 4 |
| SHRUB COVER | 13 | 0 | 35 | 4 |
| TREE COVER | 84 | 70 | 95 | 3 |

| SPECIES | MEAN | CONSTANCY |
|---|---|---|
| **TREE OVERSTORY** | | |
| WHITE FIR (ABCO) | 8 | 78 |
| DOUGLAS-FIR (PSME) | 39 | 100 |
| SUGAR PINE (PILA) | 12 | 35 |
| INCENSE CEDAR (LIDE3) | 3 | 28 |
| CHINQUAPIN (CACH2) | 24 | 100 |
| PACIFIC DOGWOOD (CONU2) | 3 | 42 |
| PACIFIC MADRONE (ARME3) | 6 | 50 |
| TANOAK (LIDE2) | 14 | 42 |
| **TREE UNDERSTORY (< 1" dbh)** | | |
| WHITE FIR (ABCO) | 8 | 100 |
| DOUGLAS-FIR (PSME) | 3 | 92 |
| INCENSE CEDAR (LIDE3) | 1 | 28 |
| CHINQUAPIN (CACH2) | 10 | 71 |
| SUGAR PINE (PILA) | 1 | 35 |
| TANOAK (LIDE2) | 16 | 78 |
| PACIFIC YEW (TABR) | 1 | 28 |
| **SHRUBS** | | |
| WILD ROSE (ROGY) | 1 | 64 |
| CREEPING SNOWBERRY (SYMO) | 1 | 28 |
| HAZELNUT (COCOC) | 2 | 21 |
| DWARF OREGON-GRAPE (BENE1) | 6 | 78 |
| TRAILING BLACKBERRY (RUUR) | 1 | 21 |
| SADLER OAK (QUSA) | 4 | 28 |
| RED HUCKLEBERRY (VAPA) | 4 | 42 |
| OREGON BOXWOOD (PAMY) | 1 | 28 |
| VINE MAPLE (ACCI) | 2 | 28 |

| | | |
|---|---|---|
| **HERBS & GRASSES** | | |
| PRINCE'S PINE (CHUMO) | 4 | 92 |
| WHITE-VEINED PYROLA (PYPI) | 1 | 78 |
| VANILLA LEAF (ACTR) | 5 | 78 |
| HOOKER'S FAIRYBELLS (DIHO2) | 1 | 50 |
| RATTLESNAKE PLANTAIN (GOOB) | 1 | 71 |
| TRAILPLANT (ADBI) | 1 | 21 |
| STARFLOWER (TRLA3) | 1 | 42 |
| BRACKENFERN (PTAQL) | 1 | 42 |
| WESTERN MODESTY (WHMO) | 8 | 71 |
| IRIS (IRI) | 1 | 35 |
| TWINFLOWER (LIBOL) | 4 | 57 |
| WHITE INSIDE-OUT FLOWER (VAHE) | 1 | 28 |
| FALSE SOLOMON'S SEAL (SMRAA) | 1 | 28 |
| MOUNTAIN HEMP (APPU) | 1 | 21 |
| QUEEN'S CUP (CLUN2) | 1 | 21 |
| REDWOOD VIOLET (VISE) | 1 | 28 |
| DOGBANE (APO) | 1 | 35 |
| WESTERN VIOLET (VILO) | 1 | 21 |

Appendix U. List of plant species identified in the Douglas-fir series with summary statistics.

| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |
|---|---|---|---|---|---|---|---|---|---|
| **Tree overstory** | | | | | | | | | |
| Pseudotsuga menziesii | 90% | 332 | 1 | 95 | 94 | 48.6 | 21.4 | 1.2 | 2.3 |
| Arbutus menziesii | 2% | 9 | 2 | 45 | 43 | 10.9 | 14.3 | 4.8 | 11.0 |
| Pinus lambertiana | 5% | 19 | 1 | 30 | 29 | 14.2 | 10.7 | 2.5 | 5.2 |
| Castanopis chrysophylla | 1% | 7 | 1 | 15 | 14 | 4.0 | 5.1 | 1.9 | 4.7 |
| Quercus chrysolepis | 3% | 13 | 1 | 70 | 69 | 30.1 | 27.1 | 7.5 | 16.4 |
| Lithocarpus densiflora | 4% | 16 | 1 | 15 | 14 | 4.7 | 3.3 | .8 | 1.7 |
| Quercus kellogii | 1% | 7 | 2 | 8 | 6 | 3.9 | 2.3 | .9 | 2.1 |
| Libocedrus decurrens | 0% | 2 | 1 | 25 | 24 | 13.0 | 17.0 | 12.0 | 152.5 |
| Acer macrophyllum | 1% | 4 | 1 | 10 | 9 | 4.5 | 4.0 | 2.0 | 6.4 |
| Abies concolor | 1% | 5 | 1 | 30 | 29 | 9.2 | 12.2 | 5.4 | 15.1 |
| Cornus nuttallii | 1% | 4 | 3 | 15 | 12 | 9.5 | 4.9 | 2.5 | 7.8 |
| Pinus jeffreyi | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Quercus garryana | 0% | 1 | 16 | 16 | 0 | 16.0 | .0 | .0 | .0 |
| Umbellularia californica | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Taxus brevifolia | 1% | 5 | 2 | 7 | 5 | 4.0 | 2.0 | .9 | 2.5 |
| Pinus ponderosa | 0% | 2 | 1 | 60 | 59 | 30.5 | 41.7 | 29.5 | 374.8 |
| Chamaecyparis lawsoniana | 0% | 2 | 1 | 5 | 4 | 3.0 | 2.8 | 2.0 | 25.4 |
| Pinus attenuata | 0% | 1 | 50 | 50 | 0 | 50.0 | .0 | .0 | .0 |
| Alnus oregona | 0% | 3 | 90 | 90 | 0 | 90.0 | .0 | .0 | .0 |
| Pinus monticola | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Tsuga heterophylla | 0% | 1 | 20 | 20 | 0 | 20.0 | .0 | .0 | .0 |
| **Tree understory** | | | | | | | | | |
| Pseudotsuga menziesii | 51% | 189 | 1 | 50 | 49 | 4.3 | 6.1 | .4 | .9 |
| Lithocarpus densiflorus | 11% | 42 | 1 | 30 | 29 | 5.3 | 5.2 | .8 | 1.6 |
| Quercus chrysolepis | 15% | 58 | 1 | 45 | 44 | 7.3 | 9.5 | 1.2 | 2.5 |
| Pinus lambertiana | 5% | 20 | 1 | 3 | 2 | 1.3 | .6 | .1 | .3 |
| Castanopsis chrysophylla | 4% | 15 | 1 | 20 | 19 | 7.6 | 6.2 | 1.6 | 3.5 |
| Abies concolor | 6% | 25 | 1 | 25 | 24 | 3.6 | 5.4 | 1.1 | 2.2 |
| Arbutus menziesii | 2% | 11 | 1 | 5 | 4 | 1.5 | 1.3 | .4 | .9 |
| Libocedrus decurrens | 3% | 14 | 1 | 2 | 1 | 1.3 | .5 | .1 | .3 |
| Cornus nuttallii | 2% | 8 | 1 | 5 | 4 | 1.5 | 1.4 | .5 | 1.2 |
| Umbellularia californica | 3% | 13 | 1 | 60 | 59 | 9.8 | 16.6 | 4.6 | 10.0 |
| Taxus brevifolia | 1% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Quercus kelloggii | 1% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Acer macrophyllum | 1% | 6 | 1 | 3 | 2 | 1.8 | 1.0 | .4 | 1.0 |
| Pinus jeffreyi | 1% | 6 | 1 | 2 | 1 | 1.2 | .4 | .2 | .4 |
| Quercus garryana | 0% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Chamaecyparis lawsoniana | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus ponderosa | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pinus monticola | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| **Shrubs** | | | | | | | | | |
| Berberis nervosa | 13% | 48 | 1 | 65 | 64 | 5.5 | 9.8 | 1.4 | 2.9 |
| Rhus diversiloba | 17% | 63 | 1 | 25 | 24 | 4.8 | 5.8 | .7 | 1.5 |
| Corylus cornuta californica | 11% | 44 | 1 | 12 | 11 | 3.1 | 2.7 | .4 | .8 |
| Vaccinium parvifolium | 4% | 16 | 1 | 60 | 59 | 7.6 | 14.8 | 3.7 | 7.9 |
| Rosa gymnocarpa | 5% | 21 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Rubus ursinus | 5% | 21 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Symphoricarpos mollis | 5% | 20 | 1 | 2 | 1 | 1.1 | .3 | .1 | .1 |
| Rhododendron macrophyllum | 10% | 39 | 3 | 85 | 82 | 42.9 | 21.6 | 3.5 | 7.0 |
| Quercus sadleriana | 5% | 21 | 1 | 75 | 74 | 15.5 | 18.0 | 3.9 | 8.2 |
| Rosa sp. | 2% | 9 | 1 | 2 | 1 | 1.2 | .4 | .1 | .3 |
| Quercus vaccinifolia | 10% | 39 | 1 | 85 | 84 | 32.9 | 23.8 | 3.8 | 7.7 |
| Gaultheria shallon | 5% | 20 | 1 | 90 | 89 | 35.4 | 30.3 | 6.8 | 14.2 |
| Holodiscus discolor | 3% | 14 | 1 | 10 | 9 | 2.9 | 3.2 | .8 | 1.8 |
| Lonicera ciliosa | 2% | 8 | 1 | 35 | 34 | 6.1 | 11.8 | 4.2 | 9.9 |
| Gaultheria ovatifolia | 0% | 3 | 2 | 20 | 18 | 9.0 | 9.6 | 5.6 | 24.0 |
| Lonicera hispidula vacillans | 1% | 4 | 1 | 4 | 3 | 1.8 | 1.5 | .8 | 2.4 |
| Paxistima myrsinites | 1% | 4 | 1 | 5 | 4 | 2.5 | 1.7 | .9 | 2.8 |
| Arctostaphylos nevadensis | 2% | 9 | 1 | 40 | 39 | 8.3 | 12.8 | 4.3 | 9.8 |
| Berberis pumila | 2% | 8 | 1 | 2 | 1 | 1.4 | .5 | .2 | .4 |
| Ceanothus integerrimus | 2% | 9 | 1 | 5 | 4 | 2.2 | 1.3 | .4 | 1.0 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Acer circinatum | 1% | 5 | 2 | 20 | 18 | 9.0 | 6.9 | 3.1 | 8.5 |
| Arctostaphylos patula | 1% | 7 | 1 | 15 | 14 | 5.6 | 6.6 | 2.5 | 6.1 |
| Amalanchier alnifolia | 1% | 4 | 1 | 2 | 1 | 1.3 | .5 | .3 | .8 |
| Rubus leucodermis | 1% | 7 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Rubus parviflorus | 1% | 7 | 1 | 3 | 2 | 1.4 | .8 | .3 | .7 |
| Garrya buxifolia | 0% | 2 | 3 | 15 | 12 | 9.0 | 8.5 | 6.0 | 76.2 |
| Ribes sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos viscida | 0% | 3 | 1 | 40 | 39 | 15.3 | 21.5 | 12.4 | 53.3 |
| Rhamnus californica | 1% | 5 | 1 | 3 | 2 | 1.8 | 1.1 | .5 | 1.4 |
| Berberis repens | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lithocarpus densiflorus ech. | 0% | 2 | 3 | 10 | 7 | 6.5 | 4.9 | 3.5 | 44.5 |
| Berberis aquifolium | 0% | 3 | 1 | 3 | 2 | 2.0 | 1.0 | .6 | 2.5 |
| Vaccinium ovatum | 1% | 4 | 3 | 75 | 72 | 33.5 | 35.0 | 17.5 | 55.7 |
| Arctostaphylos canescens | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Arctostaphylos columbiana | 0% | 2 | 1 | 10 | 9 | 5.5 | 6.4 | 4.5 | 57.2 |
| Ceanothus prostratus | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Ceanothus velutinus | 0% | 2 | 5 | 25 | 20 | 15.0 | 14.1 | 10.0 | 127.1 |
| Ribes lobbii | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Symphoricarpos acutus | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Rubus spectabilis | 0% | 3 | 2 | 10 | 8 | 5.7 | 4.0 | 2.3 | 10.0 |
| Symphoricarpos sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Heteromeles arbutifolia | 0% | 1 | 10 | 10 | 0 | 10.0 | .0 | .0 | .0 |
| Philadelphus lewisii calif. | 0% | 2 | 1 | 15 | 14 | 8.0 | 9.9 | 7.0 | 88.9 |
| Prunus emarginata | 0% | 2 | 1 | 2 | 1 | 1.5 | .7 | .5 | 6.4 |
| Rubus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Berberis piperiana | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vaccinium scoparium | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Herbs** | | | | | | | | | |
| Chimaphila umbellata occid. | 16% | 62 | 1 | 70 | 69 | 4.7 | 9.4 | 1.2 | 2.4 |
| Whipplea modesta | 13% | 51 | 1 | 50 | 49 | 13.3 | 13.5 | 1.9 | 3.8 |
| Pteridium aquilinum lanugin. | 9% | 35 | 1 | 25 | 24 | 2.0 | 4.0 | .7 | 1.4 |
| Chimaphila menziesii | 6% | 25 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polystichum munitum | 8% | 31 | 1 | 10 | 9 | 2.0 | 2.1 | .4 | .8 |
| Hieracium albiflorum | 10% | 38 | 1 | 2 | 1 | 1.1 | .3 | .0 | .1 |
| Goodyera oblongifolia | 5% | 20 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris sp. | 9% | 35 | 1 | 2 | 1 | 1.1 | .2 | .0 | .1 |
| Xerophyllum tenax | 14% | 55 | 1 | 95 | 94 | 16.8 | 21.3 | 2.9 | 5.7 |
| Pyrola picta | 6% | 25 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Trientalis latifolia | 5% | 21 | 1 | 10 | 9 | 1.5 | 2.0 | .4 | .9 |
| Achlys triphylla | 7% | 28 | 1 | 45 | 44 | 5.6 | 10.1 | 1.9 | 3.9 |
| Disporum hookeri | 5% | 22 | 1 | 2 | 1 | 1.0 | .2 | .0 | .1 |
| Linnaea borealis longiflora | 3% | 14 | 1 | 20 | 19 | 6.0 | 6.6 | 1.8 | 3.8 |
| Vancouveria hexandra | 4% | 16 | 1 | 15 | 14 | 2.4 | 3.6 | .9 | 1.9 |
| Arnica discoidea | 3% | 13 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sempervirens | 3% | 14 | 1 | 2 | 1 | 1.1 | .4 | .1 | .2 |
| Smilacina racemosa amplex. | 1% | 5 | 1 | 3 | 2 | 1.4 | .9 | .4 | 1.1 |
| Adenocaulon bicolor | 3% | 12 | 1 | 2 | 1 | 1.2 | .4 | .1 | .2 |
| Galium triflorum | 1% | 6 | 1 | 3 | 2 | 1.7 | 1.0 | .4 | 1.1 |
| Apocynum pumilum | 2% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Campanula prenanthoides | 1% | 7 | 1 | 2 | 1 | 1.1 | .4 | .1 | .3 |
| Apocynum sp. | 2% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola picta dentata | 1% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium sp. | 2% | 10 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris chrysophylla | 1% | 5 | 1 | 5 | 4 | 2.0 | 1.7 | .8 | 2.2 |
| Osmorhiza chilensis | 1% | 7 | 1 | 5 | 4 | 1.6 | 1.5 | .6 | 1.4 |
| Viola glabella | 2% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pyrola picta aphylla | 2% | 8 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola lobata | 1% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Cynoglossum grande | 1% | 5 | 1 | 5 | 4 | 2.0 | 1.7 | .8 | 2.2 |
| Trillium ovatum | 1% | 6 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia americana oregana | 1% | 6 | 1 | 9 | 8 | 2.8 | 3.1 | 1.3 | 3.3 |
| Polystichum munitum imbricans | 1% | 4 | 1 | 3 | 2 | 1.5 | 1.0 | .5 | 1.6 |
| Fragaria californica | 1% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Phlox adsurgens | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Madia madioides | 1% | 7 | 1 | 8 | 7 | 2.3 | 2.6 | 1.0 | 2.4 |
| Vancouveria planipetala | 1% | 4 | 1 | 10 | 9 | 3.3 | 4.5 | 2.3 | 7.2 |
| Corallorhiza maculata | 1% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Collomia heterophylla | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |

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|---|---|---|---|---|---|---|---|---|---|
| Corallorhiza striata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Apocynum androsaemifolium | 0% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Polygala cornuta | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sanicula crassicaulis | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Torilis japonica | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Eburophyton austinae | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium californicum | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lathyrus sp. | 0% | 3 | 1 | 3 | 2 | 2.0 | 1.4 | 1.0 | 12.7 |
| Lilium bolanderi | 1% | 5 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Corallorhiza sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dentaria californica | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Kelloggia galioides | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Lupinus sp. | 0% | 3 | 1 | 10 | 9 | 4.0 | 5.2 | 3.0 | 12.9 |
| Montia perfoliata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Montia sibirica | 1% | 4 | 3 | 80 | 77 | 53.2 | 34.5 | 17.2 | 54.9 |
| Onychium densum | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Oxalis oregana | 0% | 3 | 1 | 50 | 49 | 18.7 | 27.2 | 15.7 | 67.6 |
| Trillium rivale | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium ambiguum | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium bolanderi | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium trifidum subbiflorum | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Madia sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Achillea lanulosa | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Arnica sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Campanula scouleri | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Clintonia uniflora | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Convolvulus polymorphus | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Galium aparine | 0% | 3 | 1 | 2 | 1 | 1.3 | .6 | .3 | 1.4 |
| Habenaria unalascensis | 1% | 4 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pterospora andromedea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sidalcea malvaeflora | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Smilacina racemosa | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Vicia sp. | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Asarum caudatum | 0% | 1 | 8 | 8 | 0 | 8.0 | .0 | .0 | .0 |
| Brodiaea ida-maia | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dicentra formosa | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Stellaria jamesiana | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Boschniakia strobilacea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Brodiaea sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Disporum smithii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Hemitomes congestum | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris innominata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Iris tenuissima | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Listera caurina | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Agoseris sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Anaphalis margaritacea | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Aspidotis californica | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dodecatheon sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Lotus sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Pedicularis densiflora | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Polypodium glycyrrhiza | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Satureja douglasii | 0% | 1 | 15 | 15 | 0 | 15.0 | .0 | .0 | .0 |
| Sedum sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Sedum spathulifolium | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Triteleia sp. | 0% | 2 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Veratrum sp. | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Viola sheltonii | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| **Grasses** | | | | | | | | | |
| Festuca californica | 10% | 40 | 1 | 90 | 89 | 32.1 | 32.8 | 5.2 | 10.5 |
| Festuca occidentalis | 10% | 40 | 1 | 20 | 19 | 1.6 | 3.0 | .5 | 1.0 |
| Festuca sp. | 4% | 15 | 1 | 2 | 1 | 1.1 | .4 | .1 | .2 |
| Festuca subulata | 2% | 10 | 1 | 10 | 9 | 3.6 | 3.1 | 1.0 | 2.2 |
| Carex sp. | 2% | 8 | 1 | 7 | 6 | 2.3 | 2.4 | .8 | 2.0 |
| Bromus sp. | 0% | 3 | 2 | 4 | 2 | 2.7 | 1.2 | .7 | 2.9 |
| Elymus glaucus | 1% | 6 | 1 | 5 | 4 | 1.8 | 1.6 | .7 | 1.7 |
| Brodiaea pallida | 1% | 5 | 1 | 2 | 1 | 1.2 | .4 | .2 | .6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Festuca idahoensis | 0% | 3 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Melica subulata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Bromus carinatus | 0% | 2 | 1 | 15 | 14 | 8.0 | 9.9 | 7.0 | 88.9 |
| Melica sp. | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Aira caryophyllea | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Cynosurus echinatus | 0% | 1 | 2 | 2 | 0 | 2.0 | .0 | .0 | .0 |
| Deschampsia elongata | 0% | 3 | 1 | 3 | 2 | 1.7 | 1.2 | .7 | 2.9 |
| Arrhenatherum elatius | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Bromus vulgaris | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Dactylis glomerata | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Festuca subuliflora | 0% | 1 | 5 | 5 | 0 | 5.0 | .0 | .0 | .0 |
| Hierochloe occidentalis | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| Poa pratensis | 0% | 1 | 1 | 1 | 0 | 1.0 | .0 | .0 | .0 |
| | CONST | FREQ | MIN | MAX | RANGE | MEAN | S.D. | S.E. | CI- 5% |